SCIENCE LIBRARY

JUN 27 1931

The OIL and GAS JOURNAL

PRODUCING REFINING PIPELINE ENGINE[illegible] MARKETING

Published Every Thursday TULSA, OKLAHOMA, JUNE 25, [illegible] opy; $6.00 a Year

University of Michigan General Library Ann Arbor, Michigan

What Mr. Perkins told the Stenographer wins $50.00

One of the Prize Letters in the Recent Bettis Letter Contest

MINNEAPOLIS OFFICE [redacted] AVE SO MINNEAPOLIS, MINN

-16-

[redacted] COMPANY

OIL PRODUCERS

[redacted] BUILDING

ARDMORE, OKLA.

I'm the stenographer for our concern and in filing the oil journals I noticed your contest announcement. I didn't know what Bettis Protectors were but it didn't take me long to find out.

That afternoon Mr. Perkins, our contractor who knows all about drilling oil wells came in and I put the proposition up to him.

"Sure I know Bettis Protectors", he says, sketching me a diagram and showing me how this little contraption fits right above the tool joint, protecting the "danger point".

"It's just like reinforcing the weakest link in a chain. That's where the rub comes. This little hood also eliminates most of the friction, making smoother, more uniform and more dependable drilling. Very simple to put on too, and no adjustment is necessary.

"You can make lots safer drilling speed with them. And you don't dare make very good time without them. It's too risky. On several wells I've more than paid for Bettis Protectors by time saved in faster drilling.

"Another thing. They'll outwear that string of casing. It's like an automobile tire. You know how a light rubber tire will run thousands of miles, while that tire, if made of metal, say iron against iron, would wear out before you got to the next town. Now Bettis Protectors are the tires that sandwich in between the drilling joints and the casing, and cut out about 90% of our casing troubles.

"I class Bettis Protectors with insurance. Who wouldn't pay the small cost to insure the safety of a 4000' or 5000' hole? No good contractor is going to take foolish chances like that. Yessir, I always use 'em."

* * * * *

Do you need a good salesman? After talking with Mr. Perkins I feel like selling the world on Bettis Protectors.

Vivian McCullough,
Box 474,
Ardmore, Okla.

BETTIS PROTECTORS

Patterson-Ballagh Corp.

1900 East 65th Street, Los Angeles

Texas and Gulf Coast Distributors:
BETTIS SALES CO., 917 Merchants & Mfrs. Bldg., Houston

Oklahoma Distributors:
BAILEY & BECKER COMPANY, 210 Tuloma Bldg., Tulsa

New York Office: 39 Cortlandt St.

Carried in stock at Los Angeles, Ventura, Kettleman Hills, Bakersfield, Coalinga and Long Beach, California; Tulsa and Oklahoma City, Oklahoma; Houston, Texas; Hobbs, New Mexico; Calgary, Alberta, Canada; New York City.

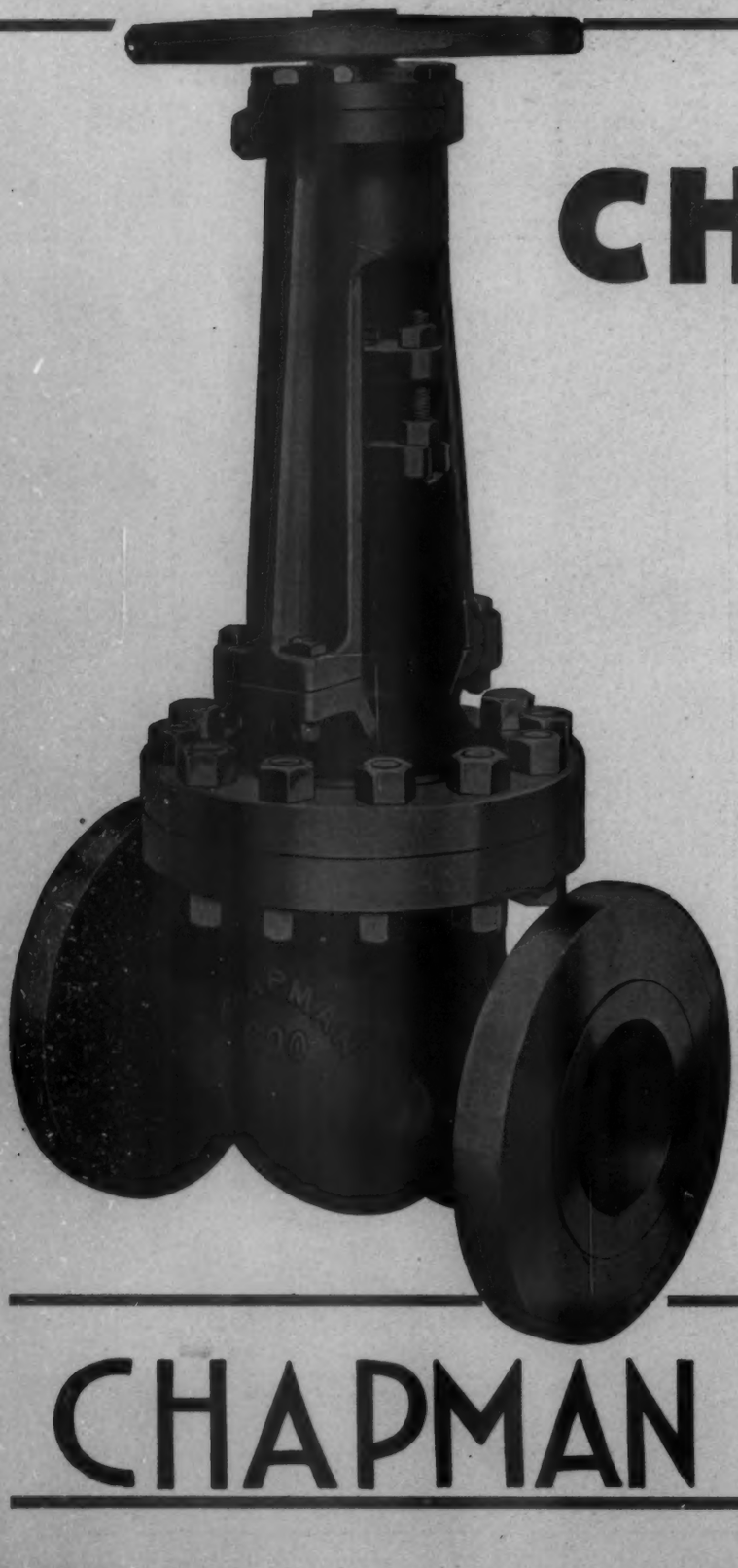
Advertisers' Index on Page 9

Table of Contents on Page 10

STRONGER

because it is built of

CHAPMAN CHROME TUNGSTEN STEEL



This refinery valve is right in its element at working pressures as high as 1350 lbs. It is unaffected by constant temperatures of 1200 deg. F. and by intermittent service 200 deg. higher. It is high in its resistance to corrosive gases and scaling, even at these extreme temperatures.

Not only exhaustive laboratory tests, but also long continued service in actual operation, prove that valves and fittings built of Chapman Chrome Tungsten Steel—an exclusively Chapman development—carry assurance of new economies in long-lived equipment, and the establishing of new standards of performance.

Our nearest branch office will give you full details of this new steel, and of the equipment built of it. Ask them, or write us direct.

The Chapman Valve Manufacturing Co.
INDIAN ORCHARD, MASS.

Valves for the oil industry carried in stock at
Los Angeles—2314 E. Eighth St. San Francisco—525 Fourth St.
Houston—2610 Bell Ave.

Other Branch Offices
Pittsburgh Detroit Cleveland Atlanta Philadelphia Chicago
Syracuse New York Boston

Mid-Continent Factory Representative:
TAUBMAN SUPPLY CORPORATION
General Offices: Tulsa, Oklahoma

CHAPMAN VALVES and FITTINGS

The ADVERTISERS' INDEX

A

Ajax Iron Works
Alco Products, Inc.
Allegheny Steel Co.
Allen Corp., The
Allis-Chalmers Mfg. Co.
Allis, Louis, Co., The
Allsteel Products Mfg. Co., Inc., The 81
Aluminum Co. of America
American Assn. of Petroleum Geologists
American Cable Co., Inc.
American Cast Iron Pipe Co.
American Iron & Machine Works Co..... 55
American Meter Co.
American Radiator Co.
American Rolling Mill Co., The
American Schaeffer & Budenburg Corp.
American Sheet & Tin Plate Co.
American Stainless Steel Co.
American Steam Pump Co.
American Steel & Wire Co.
American Steel Works
American Tank & Equipment Corp.
American Wells Works, The 96
Anchor Post Fence Co.
Armstrong Machine Works
Athey Truss Wheel Co.
Automotive Distillate Corp.
Axelson Mfg. Co., Ltd. 61
Ayer & Lord Tie Co.

B

Baash-Ross Tool Co.
Badger, E. B., & Sons Co.
Badgett Steam Lubricator Co.
Baker Oil Tools, Inc. 135
Barber-Greene Co.
Baroid Sales Co.
Barnickel, Wm. S., & Co.
Barnsdall Refineries, Inc.
Barrett Co., The 29
Beaumont Iron Works Co., The
Benson & Henderson Pipe Line Construction Co.
Bethlehem Steel Co.
Bigelow-Liptak Corp.
Bignall & Keeler Machine Works
Blackor Co.
Black, Sivalls & Bryson, Inc. 8A-8B
Bradford Motor Works, Inc. 107
Brauer Machine & Supply Co.
Braun, C. F., & Co.
Brewster Co., Inc., The 39
Bridgeport Machine Co. 37
Bristol Co., The
Broderick & Bascom Rope Co. 82
Broderick Co., The
Brown Instrument Co.
Buckeye Traction Ditcher Co.
Burford Oil Co.
Butler Mfg. Co.
Byers, A. M., Co.
Byron Jackson Co.

C

Campbell Co., J. A.
Carbondale Machine Co.
Carey, Philip, Co., The
Caterpillar Tractor Co.
Chain Belt Co. 62-63
Champion & Barber, Inc.
Chaplin-Fulton Mfg. Co., The 80
Chapman Valve Mfg. Co., The .....Inside Front Cover
Chicago Bridge & Iron Works 35
Clark Brothers
Classified Wants 100-101
Cleveland Trencher Co., The
Colona Mfg. Co.
Colorado School of Mines
Columbian Rope Co.
Columbian Steel Tank
Columbus Forge & Iron Co., The
Consolidated Ashcroft Hancock Co., Inc.
Continental Supply Co., The 65
Cooper-Bessemer Corp., The
Corona Products, Inc.
Crane Co. 58-59
Crowe Laboratory Appliances

D

Darling Valve & Mfg. Co.
Dart, E. M., Mfg. Co.
Davey Compressor Co. 3
Davis Regulator Co. 109
Dearborn Chemical Co.
Dehydro, Inc.
Devine Mfg. Co., Inc., J. P.
Diamond Rubber Co.
Dixon Crucible Co., Joseph 93
Dodge Brothers Corp.
Doheny Stone Drill Co.
Donovan Boiler Works, Inc.
Dresser, S. R., Mfg. Co. 21
Driftmeter, Inc.
Du Pont de Nemours & Co., Inc. E. I.
Duriron Co., Inc., The

E

Eagle-Picher Lead Co.
East Texas Refining Co.
Economy Pump & Tool Co., The
Edward Valve & Mfg. Co., Inc.
Elliott Mfg. Co.
Empire Oil & Refining Co.
Ethyl Gasoline Corp.
Exchange Banks of Tulsa

F

Falk Corp., The
Fenwick-Reddaway Mfg. Co.
Fisher Governor Co.
Foote Bros. Gear & Machine Co.
Fort Worth Chamber of Commerce
Foster Wheeler Corp. 112
Foxboro Co., Inc., The
Franklin Valveless Engine Co.
Frick-Reid Supply Corp.

G

Gardner-Denver Co. 27
Garlock Packing Co., The
Gaso Pump & Burner Mfg. Co. .....Inside Back Cover
Gates Rubber Co.
General American Tank Car Corp.
General Electric Co.
General Paint Corp.
Globe Oil Tools Co.
Goodrich, B. F., Rubber Co., The
Goodyear Tire & Rubber Co.
Goslin-Birmingham Mfg. Co.
Gott, H. P., Mfg. Co., Inc. 97
Goulds Pumps, Inc.
Granger Indicator Co.
Granite City Steel Co.
Grant Oil Tool Co.
Gray Processes Corp., The 4
Grinnell Co., Inc.
Griscom-Russell Co., The
Guiberson Corp., The
Gulf Refining Co. 129

H

Halliburton Oil Well Cementing Co. 76
Hamer Oil Tool Co., Ltd.
Hanlon-Waters, Inc.
Harrisburg Pipe & Pipe Bending Co.
Hazard Wire Rope Co. 52
Headley Emulsified Products Co.
Hedges-Walsh-Weidner Co., The
Heeter, Sons & Co., Inc., C. M.
Hercules Motors Corp.
Hercules Supply Co.
Hercules Tool Co.
Hewitt-Gutta Percha Co.
Heydrick Mapping Co. 135
Highland Iron & Steel Co., The
Hill, Hubbell & Co.
Hope Engineering Co.
Hopper Machine Works, Inc.
Hough, Charles N., Mfg. Co., The
Hughes Tool Co. .....Back Cover
Humble Oil & Refining Co.

I

Improved Steel Gas Engine Head Co.
Indian Refining Co. 97
Industrial Brownhoist Corp.
Industrial Dallas, Inc. 83
International Derrick & Equipment Co., The
International Harvester Co. of America
International Nickel Co., Inc., The
International-Stacey Corp. 97
International Supply Co.

J

Jackson Co., Byron
Jackson Engineering Corp.
Jarecki Mfg. Co
Jenkins Engineering Co.
Jenkins Bros.
Jerguson Gage & Valve Co.
Johns-Manville Corp.
Jones & Laughlin Steel Corp. 67

K

Kellogg, M. W., Co., The 8
Kennedy Valve Co., The
Kerotest Mfg. Co.
Key Boiler Equipment Co.
Kirk-Morrow Iron Works, Inc.
Kohler Co.
Koppers Co., The

L

Landis Machine Co., Inc.
Layne & Bowler Co.
Leader Iron Works, Inc.
Lemons, Inc., Henry L.
Leonard Construction Co.
Limbert & Co., George B.
Lincoln Electric Co.
Linde Air Products Co.
Littleford Bros. Co.
Longyear, E. J., Co.
Lucey Products Corp.
Ludlow Valve Mfg. Co. 106
Lufkin Foundry & Machine Co., The....
Lummus Co., The
Lunkenheimer Co., The 73

Mc

McAlear Mfg. Co., The
McClintic-Marshall Corp.
McCord Radiator & Mfg. Co.
McEverlast, Inc.
McEvoy, J. H., & Co.
McIntosh & Seymour Corp.
McKee, Arthur G., & Co.

M

MacClatchie Mfg. Co.
Magnolia Petroleum Co.
Mair, D. S., Machinery Corp.
Maloney Tank Mfg. Co. 31
Marsh Gauge Pole Co. 96
Martin-Decker Corp.
Merco Nordstrom Valve Co.
Metric Metal Works
Michigan Valve & Foundry Co.
Mid-Continent Map Co.
Midwest Piping & Supply Co., Inc.
Mine Safety Appliance Co.
Moon Mfg. Co., The
Moore, Lee C., & Co., Inc. 74-75
Mooriane Co., Inc.
Morris, I. P., & De La Vergne, Inc.
Moser Manufacturing Co.
Multiplex Display Fixture Co.
Munn & Co. 135
Murray Tool & Supply Co.

N

National Airoil Burner Co. 97
National Equipment Corp.
National Lead Co.
National Supply Co. 68-69
National Tank Co.
National Tank Seal Co.
National Transit Pump & Machine Co... 19
National Tube Co.
Naylor Pipe Co. 43
Neilan Co., Ltd.
North American Car Corp.
Northwest Engineering Co.

O

Oakite Products, Inc.
O'Brien Steel Construction Co.
Ohio Injector Co., The
Oil Conservation Engineering Co., The..
Oil and Gas Journal, The
Oil Well Supply Co. 2
Oklahoma Gas & Electric Co.
Ottumwa Iron Works 108
Oxweld Acetylene Co.

P

Page Fence Assn. 77
Page Steel & Wire Co.
Parkersburg Machine Co. 128
Parkersburg Rig & Reel Co., The
Patch, W. N.
Patterson-Ballagh Corp.....Front Cover
Penberthy Injector Co. 23
Petroleum Engineering, Inc.
Petroleum Equipment Co. 96
Petroleum Iron Works Co.
Pickering Governor Co., The
Pittsburgh-Des Moines Steel Co. 93
Pittsburgh Equitable Meter Co.
Pittsburgh Screw & Bolt Corp.
Pittsburgh Steel Products Co.
Plymouth Cordage Co. 72
Pomona Pump Co. 93
Powell, William, Co.
Power Mfg. Co., The
Power Piping Co.
Prescott Co., The
Prest-O-Lite Co., Inc., The
Primrose Petroleum Co.
Public Service Co.
Pure Oil Co., The 90
Pyle-National Co., The

R

Reading Iron Co.
Reading Steel Casting Co., Inc.
Regan Forge & Engineering Co.
Reid, Joseph, Gas Engine Co.
Reo Motor Car Co. 47
Republic Steel Corp. 84
Republic Supply Co.
Robinson Orifice Fittings Co.
Roebling's, John A., Sons Co.
Ross-Meehan Foundries Co. 96

S

St. Louis Cordage Mills 85
Saigh, N. A., Co. 104
Shaffer Tool Works
Sheldon Machinery Corp.
Sherwin-Williams Co.
Smith, A. O., Corp. 6-7
Smith Separator Co.
Smooth-On Mfg. Co.
South Chester Tube Co.
Southwestern Construction Corp.
Southwestern Engineering Corp.
Spang & Co.
Spang, Chalfant & Co., Inc.
Sperry-Sun Well Surveying Co. 86
Star Drilling Machine Co.
Steiner, George
Sterling Steel Casting Co.
Stockham Pipe & Fittings Co.
Stoody Co.
Sullivan Machinery Co.
Sun Shipbuilding & Drydock Co.
Superheater Co., The
Sureshot Torpedo Co.

T

Tagliabue, C. J., Mfg. Co.
Taubman Supply Corp.
Taylor Forge & Pipe Works
Technical Products, Inc. 135
Texas Electric Service
Texas Steel Co.
Thompson, J. D., Jr. 135
Timken Roller Bearing Co., The 56
Titusville Iron Works Co.
Toledo Pipe Threading Machine Co., The.107
Trackson Co.
Tractor Truck Equipment Co.
Tretolite Co.
Trimont Mfg. Co.
Truman Smith Const. Co., The
Truscon Steel Co.
Tube Turns, Inc.
Tulsa Boiler & Machinery Co.

U

Union Carbide & Carbon Corp.
Union Wire Rope Co. 70
United Engineers & Constructors
United States Steel Corp.
Universal Oil Products Co. 50-51

V

Vacuum Oil Co.
Vellumoid Co., The
Vickers Machine Co.
Victaulic Co. of America 87
Victor Balata & Textile Belting Co.
Vogel, Felix A.
Vogt, Henry, Machine Co. 78-79

W

Wagner Electric Corp.
Wailes, Dove-Hermiston Corp.
Wall Rope Works, Inc.
Walworth Co. 1
Warren Petroleum Co.
Waukesha Motor Co. 88
Westco Pump Corp. 91
Westcott Valve Co.
Western Gas Construction Co., The
Westinghouse Electric & Mfg. Co., The.. 41
Wickwire Spencer Steel Co.
Wico Electric Co.
Williamsport Wire Rope Co.
Wilson-Snyder Mfg. Corp.
Winkler-Koch Engineering Co., The 116
W. K. M. Co., Inc.
Worthington Pump & Machy. Corp. 5
Wright Manufacturing Co.
Wyatt Metal & Boiler Works

Y

Young Engine Corp.
Youngstown Sheet & Tube Co., The....

The OIL and GAS JOURNAL

PRODUCING REFINING PIPELINE ENGINEERING MARKETING

VOL. 30. NO. 6. TULSA, OKLAHOMA, JUNE 25, 1931

Copyright, 1931, by The Petroleum Publishing Co.

Table of Contents

SPECIAL ARTICLES

Oil Industry Becoming More Optimistic 11
By Andrew M. Rowley
Higher prices throughout country will follow effective proration in East Texas. Little confidence in unit plan.

East Texas Makes Pipe Line Record 13
By Neil Williams
Outlet for 800,000 barrels by September 1. Construction program.

Demand for Special Session in Texas 13
By Special Correspondent
East Texas Committee tries to show Cranfill plan workable.

Export Outlook for Last Half Year 14
By A. E. Mockler
Some sellers expect increase with low prices. Russia factor.

Poor Material and Haste Cause Accidents 14
By L. G. E. Bignell

East Texas Oil Along Old Shore Line 15
By E. G. Woodruff
Once was large circular island across Cretaceous Sea.

Northeastern Colorado Potential Area 16
By Tolbert R. Ingram
Believe it may develop major pool. Great leasing play.

Effect of Shutting in Producing Wells 17
By L. G. E. Bignell
Experience of different companies shows increased yield.

Legal Aspects of Gas Conservation 17
By Robert E. Hardwicke
Present laws and production methods need overhauling.

Proration Develops New Kind of Suit 18
By Special Correspondent
Offset owners charged with draining another's leases in East Texas.

Production Too Low (Editorial) 20

Explain Various Clay Recovery Methods 22
By E. W. Zublin
Contact clays require more complex treatment.

Encouraging Crude Price Revisions 24
By L. P. Stockman
California high grade oils increased. Mid-Continent flat scale.

Pipe Line Construction News 28

Death of Henry McGraw 33

Field Methods of Treating Oil 48
By C. R. Webb

Snapped by Journal's Cameras 49

English Oil Man Hears of Kentucky Oil Heritage 53

Electric Balance Measures Well Pressure 54
By John H. Payne

Field Problems and Their Solution 60
Edited by Thomas F. Smiley

National Board of Oil Control Suggested 72
By Warner Clark

Formulas for Mud Admixtures 85
By T. B. Wayne

Reducing Fuel and Water Consumption on Steam-Driven Rotaries 112
By John T. Hayward

FIELD OPERATIONS

Late Fields 24

West Texas, North Texas and Panhandle 25
By L. E. Bredberg

East Texas 26
By L. E. Bredberg

Oklahoma 33
By W. A. Spinney

Kansas 36
By W. A. Spinney

North Louisiana-Arkansas 38
By J. R. Crumpton

Southwest Texas 40
By B. D. Stevenson

Gulf Coast 42
By Neil Williams

Rocky Mountain Area 44
By Tolbert R. Ingram

Canada 44
By Victor Lauriston

Corning Gas Field 45
By Special Correspondent

California 46
By L. P. Stockman

Eastern Fields 53
By Staff Correspondent

Central West and Kentucky 54
By George A. Whitney

REFINING AND MARKETING

Better Feeling in Oklahoma Market 12
By C. O. Willson
Gasoline movement heavy first of week. Price improvement expected.

Technical Questions Answered 64
By Charles K. Francis, Ph.D.

Better Tone in Chicago Market 99
By Robert C. Conine

Mixed Trends in East Coast Market 102
By A. E. Mockler

Brief Items for Petroleum Refiners 113

Natural Gasoline Manufacture 114

Refinery and Crude Prices 116-117

Tank Wagon Quotations 118

Of Interest to Sales Departments 119

Revised Code of Ethics 121

DEPARTMENTS OF GENERAL INTEREST

The Advertisers' Index 9

Oil Industry Equipment and Supplies 57

Natural Gas Developments 66

Personal Paragraphs About Oil Men 71

Classified Want Advertisements 100-101

Field Operations in May 130

Crude Petroleum Statistics 136

BRANCH OFFICE CORRESPONDENTS

D. H. Bancroft, 538 Ricou Brewster Building, Shreveport, La.
L. E. Bredberg, 601 Petroleum Building, Fort Worth, Tex.
Robert C. Conine, Room 1416, 6 North Michigan Ave., Chicago, Ill.
Paul A. Elliott, Chronicle Office, Muskegon, Mich.
Tolbert R. Ingram, 130 State Office Building, Denver, Colo.
Charles E. Kern, 602 Albee Building, Washington, D. C.
Victor Lauriston, 35 Stanley Ave., Chatham, Ontario, Canada.
B. E. V. Luty, Bessemer Building, Pittsburgh, Pa.
A. E. Mockler, Rooms 1919-21, No. 154 Nassau Street, New York, N. Y.
B. D. Stevenson, 1504 Milam Building, San Antonio, Tex.
L. P. Stockman, 522 Union Oil Building, Los Angeles, Calif.
Leon H. Walter, Oil City Derrick, Oil City, Pa.
George A. Whitney, Box 98, Main Post Office, Toledo, Ohio.
Neil Williams, 1316 Second National Bank Building, Houston, Tex.

Refinery Section Starts on Page 99

Oil Industry Becoming More Optimistic

Highest production in 1930, week ending Feb. 22, average daily output 2,699,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Higher Prices Throughout Country Will Follow Effective Proration in East Texas. Little Confidence in Unit Plan

By Andrew M. Rowley

Lowest daily average crude oil production in the United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

A more optimistic feeling is noticeable throughout the petroleum industry. Crude oil and gasoline prices have been advanced in California, as forecast in The Oil and Gas Journal June 11, and slight increases in gasoline prices in the Mid-Continent are regarded as a trend of the price situation in that area. A general increase in crude oil prices throughout the country undoubtedly will be made as soon as a definite and enforceable proration plan is made effective in East Texas.

There seems to be but little confidence in the efficacy of the unit plan of proration for East Texas. Even those sponsoring the plan admit there are "about 12 producers violating this gentleman's agreement that started last Saturday." Those in close touch with the situation in East Texas know every possible scheme is being employed to cover up excess production, runs and shipments. Knowing this, can they be blamed for feeling the unit plan is little more than a smoke screen to try to stave off a special session of the Texas legislature which might pass a law with teeth in it to make proration enforceable?

There has been entirely too much delay in clamping down the lid on East Texas. The entire industry is suffering as a result. Governor Sterling of Texas is a veteran oil man and entirely familiar with the situation. It is believed he will find it necessary to call a special session of the legislature, for the unit plan certainly will not stop overproduction in East Texas. Each day the call for the special session is delayed, just so much longer must the industry rock along on low prices.

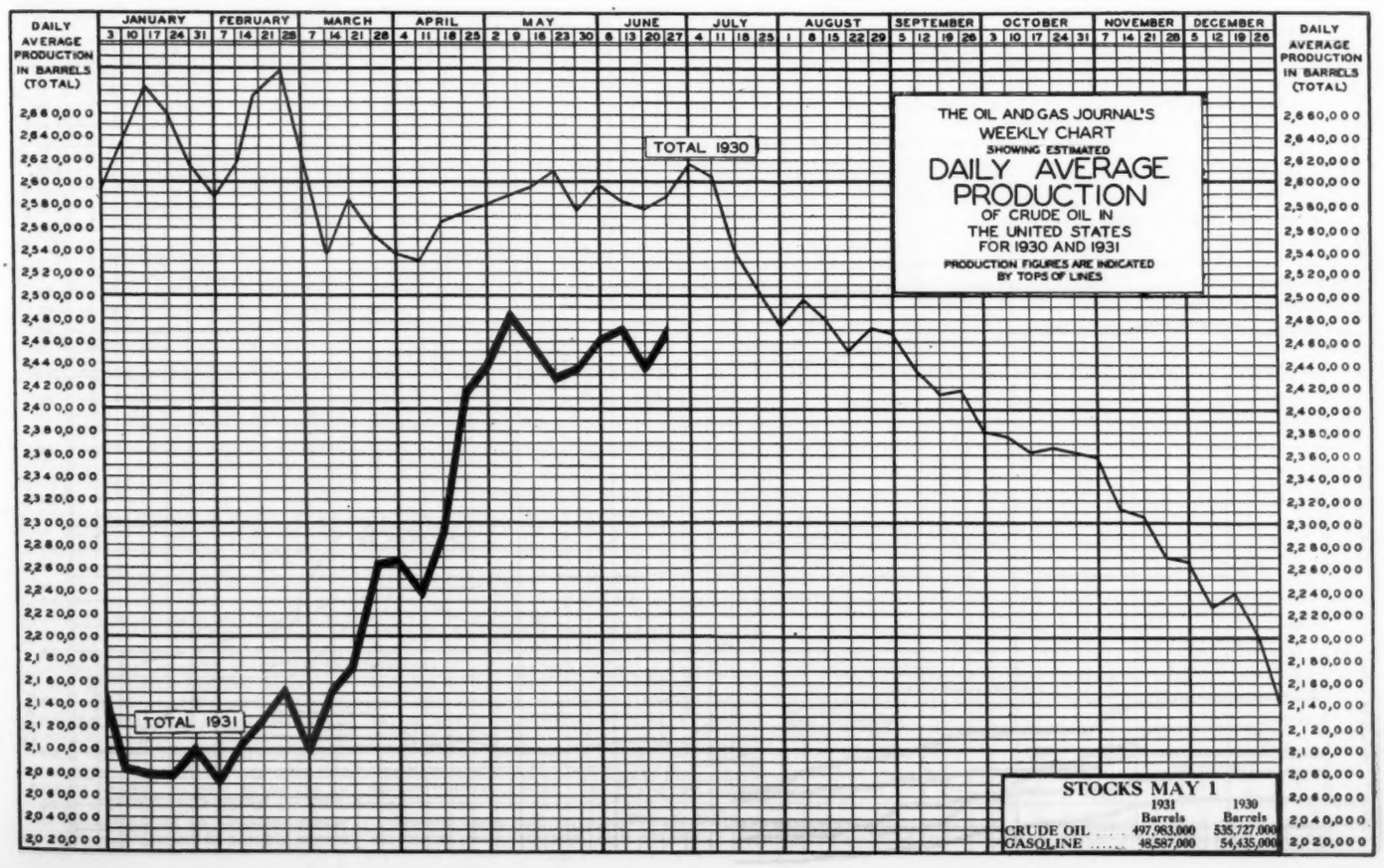
California operators are placed on their good behavior under the higher crude oil price schedule made effective last week. If they adhere to the curtailment program, the higher prices will continue. Otherwise, the lower prices will again obtain. East Texas is holding back higher prices for the rest of the industry. Until operators in that area actually curtail production the pipe line companies should not make any new connections and buyers should withdraw from the market.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended June 20 and a comparison with the previous week follows:

	June 20	June 13
Oklahoma—		
Oklahoma City	161,935	170,785
Seminole-St. Louis	156 265	149,120
Remainder of State	238,945	237,160
Total Oklahoma	557,145	557,065
East Texas—		
Kilgore	188,868	168,000
Lathrop	68,372	46,700
Joiner	114,122	114,300
Total East Texas	371,362	329,000
West Texas	215,113	210,024
North Central Texas	84,699	80,493
Texas Panhandle	58,940	57,963
East Central Texas	60,150	60,750
North Louisiana	35,950	37,400
Arkansas	44,870	45,345
Kansas	100,910	102,910
Total Mid-Continent area	1,529,139	1,480,950
Gulf Coast	159,676	169,500
Southwest Texas	64,336	58,050
Eastern	110,000	110,000
Rocky Mountain area	98,370	99,353
California—		
Santa Fe Springs	64,500	64,500
Long Beach	76,500	80,500
Playa Del Rey	26,000	29,500
Elwood	26,500	33,000
Kettleman Hills	58,000	55,500
Remainder of State	263,250	262,750
Total California	514,750	525,750
Total United States	2,476,271	2,443,603

→ Increase 32,668 Bbls. Daily ←



Better Feeling in Oklahoma Market

Gasoline Movement Heavy First of Week and Sellers Expect Price Improvement for July. Other Products Dull

By C. O. Willson

The gasoline market in Oklahoma and other Mid-Continent areas appeared to be in a slightly stronger position the first of the week. Prices continued to decline most of last week but on Monday and Tuesday of this week buying was heavy and there was tendency among sellers to advance quotations.

Kerosene prices were lowered in several refining groups competing with Oklahoma and several operators in the latter State found it necessary to lower their quotations to secure spot business. All grades of fuels, distillates and gas oils continue dull and prices are lowered when any changes are made. Scattered reductions have been made in steam refined stocks and bright stocks although the larger manufacturers did not encourage any changes during the week.

Better Feeling

In addition to the heavier buying, other developments during the week have contributed to the better feeling among Oklahoma refiners who are still hopeful that July and August at least will bring a stronger market, a period in which approximately 20 per cent of the year's domestic gasoline consumption takes place. The advance in California's crude oil and gasoline prices was interpreted favorably. Although less is heard of California competition this year than in previous years due to the fact that there has been plenty of trouble closer home, nevertheless the higher prices on the West Coast, if maintained, should aid the coastal and export market situation and thus indirectly benefit the Mid-Continent markets.

It is also believed that the California advance will furnish an object lesson for other areas having overproduction, particularly East Texas. The California prices were increased by the major companies due to the fact that a proration plan had been made effective and presumably they will continue in force as long as that situation obtains. Some market students predict somewhat similar development can be expected in the Mid-Continent provided the East Texas situation can be straightened out and the supply of crude brought in line with the demand of the large and small buyers. Although the market conditions of the West Coast and Mid-Continent differ in many respects, particularly in the tank car sales end, it does seem reasonable to conclude that some improvement in gasoline prices is assured if a satisfactory proration can be worked out for East Texas with a continuance of present proration programs in other Mid-Continent fields. At this writing, the East Texas situation is still "very much in the air" and this condition is reflected daily in the refinery market. However, those in close touch with the Texas situation believe that sentiment is slowly crystallizing in favor of a new law which will adequately take care of East Texas and similar situations which may develop in the future.

The East Texas situation is discussed here for the reason, as explained in previous issues, that it holds the key position not only in the Mid-Continent but the entire market east of the West Coast. With a continuance of conditions as they have prevailed over the past several months no permanent improvement in refined market prices on gasoline or any of the other major products is to be expected. It is possible that the gasoline market will stiffen in July and August regardless of what happens to East Texas proration due to the peak demand during those two months but it is certain that with the arrival of fall and winter months the market would again be flooded with surplus crude oil and refinery products.

Flat Price for Crude

Since the announcement last week of a flat price for crude oil in the principal fields by the Magnolia Petroleum Co. there has been considerable discussion of its possible effect on the refinery market. Up to Tuesday, the Magnolia schedule had not been adopted by other major buyers.

So far as the refinery market is concerned, the Magnolia action if generally adopted does not appear to have any immediate significance. Although no announcement was made by the company it is assumed that the flat prices reflect the fact that there is little difference in the value per gallon, in the several products obtained in a skimming and cracking operation. Gasoline and kerosene are bringing practically the same price. Most of the larger refiners

(Continued on Page 128)

REFINED MARKET BAROMETER

Advances in California featured price changes in refined markets during the past week. Following a general advance in posted crude oil schedules, prices on practically all products with the exception of fuel oils and lubricants were advanced on the West Coast. In other areas price changes for the week were mostly downward. Refinery gasoline continues weak and quotations were reduced fractionally in several areas. A drastic cut was made in kerosene at East Coast points and average prices were down at interior points. No changes of general importance were reported in fuel oil, gas oil and distillate. No improvement was noted in a slow lubricating oil and wax movement.

Mid-Continent—Gasoline prices slightly lower despite heavy movement. Natural gasolines firm. Kerosene prices lower. Fuels and gas oils unchanged. Furnace oil prices lower. Lubricants and wax weak.

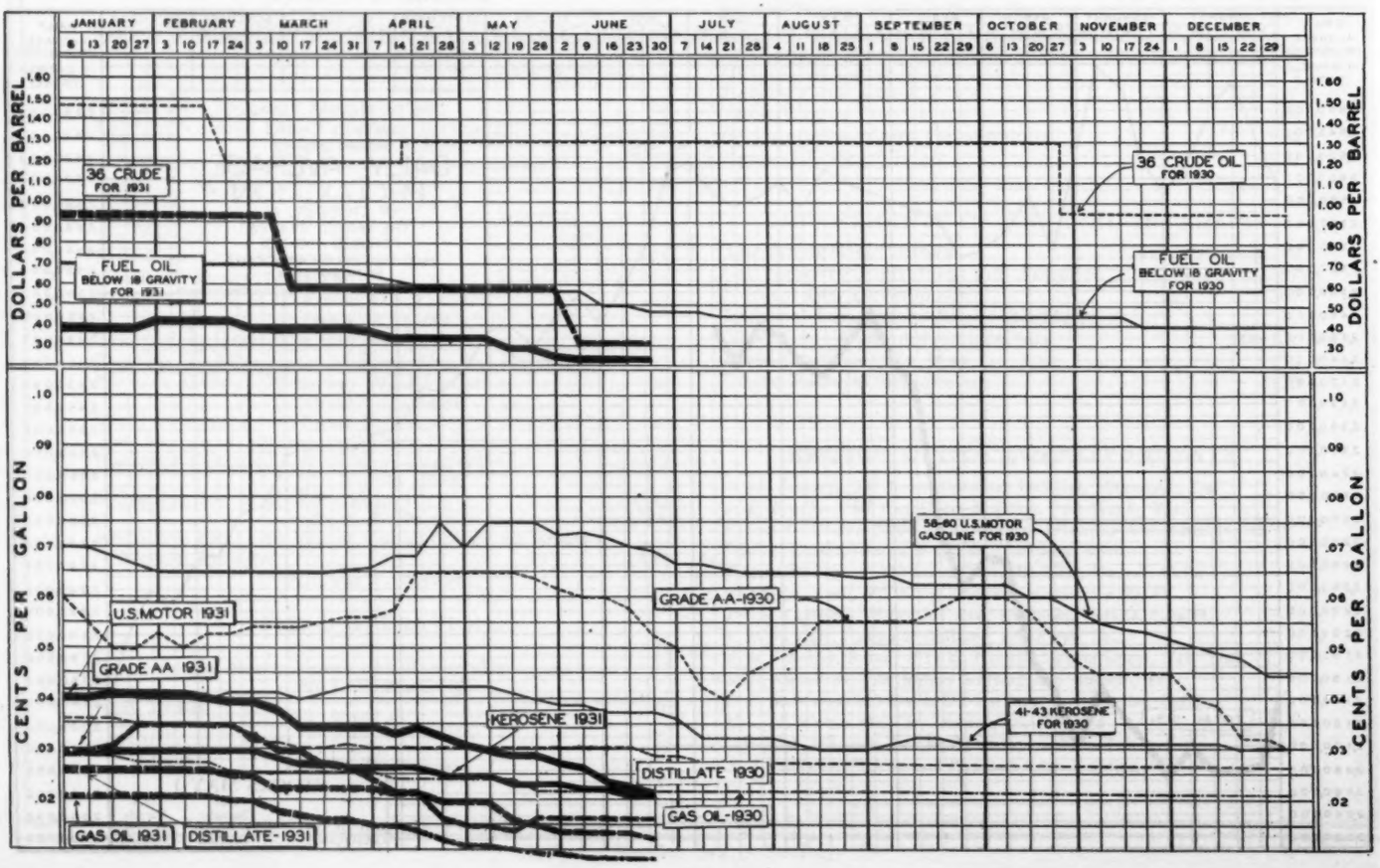
East Coast—Drastic reduction in kerosene prices by major refiners. Gasoline market unsettled and price trend downward. Fair demand for fuel oils and Diesel oils with no change in prices. More active demand for motor oils and wax but prices unchanged.

Chicago—Better feeling regarding future of gasoline market although price levels lower than last week. Natural gasoline and naphtha less active. Kerosene dull. No change in lubricating oils. Fuel oil and gas oil offered at lower prices.

Gulf Coast—Gasoline weak. Weak undertone in fuel oil market. No change in pale and red neutrals.

Pennsylvania—Prices on several grades of refinery gasoline and kerosene lower. No important changes in neutral oils and bright stocks.

California—Gasoline prices for local and coastwise delivery advance sharply following crude price increases. Kerosene and distillate prices also higher.



East Texas Makes Pipe Line Record

Area Will Have Outlet for 800,000 Bbls. Daily by September 1. Big Construction Program Rushed to Completion

By Neil Williams

HOUSTON, Tex., June 22.—Just as the field itself has reached proportions not before attained by any other field in the country so pipe line construction in East Texas has exceeded that in any other area in the history of the oil industry. And, like the rapidity of the development of the field, so the pace set in pipe line expansion has been so fast that it has been almost incomprehensible.

Before the advent of the East Texas fields, the greatest pipe line outlet ever provided for any area was in West Texas, from which district 10 trunk lines with a total capacity daily of 375,000 bbls. were laid. This capacity was built up over a period of development of two years. Now, the East Texas district, before it is a year old, is to have a pipe line outlet capacity of at least 550,000 bbls. daily, and if several proposed and tentative projects are put through the line capacity will be swelled by another 75,000 to 100,000 bbls. daily.

This pipe line construction does not take into consideration the 45 small lines from the fields to loading racks, which provide an additional outlet of better than 200,000 bbls. daily but is confined to through pipe lines out of the field, which to date, including those already completed or actually under construction total 13.

All Within Four Months

The speed with which a more than adequate pipe line outlet has been provided for East Texas is typical of modern pipe lining. The discovery well, C. M. Joiner's No. 3 Daisy Bradford, Rusk County, was completed last September, only nine months ago. In reality, however, no great importance was placed on the field until Bateman and associates' (now Humble Oil & Refining Co.) No. 1 Crim in the Kilgore district was completed in December; and, it was not until after the bringing in of Arkansas Fuel Oil Co. and others' No. 1 Lathrop at Longview, Gregg County, on January 26 of this year, only five months ago, that any particular attention was paid to pipe line outlets other than local lines to loading racks.

Thus it can be stated that it has been only within a period of less than four months, dating from February, that East Texas' record for pipe line outlet capacity has been provided or laying of lines whose total daily capacity will go to make up that record has got under way. With one exception these lines will all have been completed within another 30 days, and that one exception, Shell Pipe Line Co.'s proposed 12-inch line to Houston, is expected to be finished by September 1.

There are, of course, a number of factors which have influenced the building up of such a large pipe line outlet capacity in such a short time. In the first place the unprecedented development of the field in which such enormous production potentials have been reached unrestrained and in which the amount of oil to be recovered in the future now seems so great naturally would call for greater facilities for handling the oil.

However, the rapidity with which all companies have rushed into the East Texas area in the face of a market condition already overburdened with oil and despite the fact that most of the new pipe line entrants wanted no new oil is due to reasons other than the size of the field. The accessibility of an abundant supply of highly desirable crude possibly proved the greatest temptation to pipe line companies, leading them to rush in when they probably would not have done so if the field had been more distant from markets and if the crude had been of an inferior quality.

Field Ideally Located

The field has been so ideally located that although a record amount of pipe line outlet capacity is being built up in short time this has been and is being provided with a minimum of new pipe laying. The field, being only from 150 to 180 miles inland from large oil loading terminals along the Gulf of Mexico, just a comparatively few miles from the North Louisiana and Arkansas, and the North Texas refining area as well as that of Oklahoma would require only a comparatively small amount of pipe line laying even if many of the big pipe line trunk systems to the coast did not already pass almost through the field. Nearly all these companies have trunk systems bordering the East Texas area and have lost no time in making connections. Four companies have or are building lines out of the field direct to market terminals.

The first lines or connections built into the area were chiefly for the purpose of protecting the individual company's production and not with a view to providing any great pipe line outlet. In the development of the district following the bringing in of the Bateman and Lathrop wells, up to which time no thought particularly was paid pipe line outlets, it became apparent that tank car and rail outlets were entirely insufficient. Congestion began to develop, and such companies as Humble, Magnolia and Arkansas Fuel Oil then began plans for insuring outlet for their own respective production, those companies being among the first producers of the larger companies.

Reasons For New Lines

The flood of oil which has arisen there and which has made available large quantities of desirable crude at low prices has been the inducement for additional pipe line facilities other than needed by those companies to take care of their own respective production. Several companies are in a position to utilize this crude in preference to oils which can be obtained from other districts while others expect to profit by returns as common carriers in transportation of the oil.

In virtually every instance, the companies having built or now putting in lines into East Texas, have far more potential daily production than the capacities of their respective lines and unless the district is placed under some restricted production even the large outlet facilities will not be adequate for the quantity of oil produced. For, if the companies having lines are forced to open their own production by reason of offset drainage, their lines will be more than filled with their own oil and producers without con-

(Continued on Page 125)

Demand for Special Session in Texas

East Texas Committee Meanwhile Tries to Show Governor and Commission That the Cranfill Plan Will Work

By Special Correspondent

AUSTIN, Tex., June 23.—Thirty East Texas oil men and the East Texas oil arbitration board urged the Railroad Commission to enter an emergency order ratifying the 300-bbl. unit plans put into voluntary operation, and urged Gov. Ross S. Sterling to give the plan a trial.

Railroad Commissioner Lon A. Smith said it looked as if there will be no order on East Texas until a regular hearing June 29.

Governor Sterling pounded the oil spokesman with questions whether they did not need a law backing up their agreement. He said he was opposed to a special session, unless it was proven necessary, and that he hopes the plan will work. He said he had been told its observance was not complete, and wanted to know what will prevent future producers from ignoring it.

Wide Demand for Session

Meantime, one after another of the state senators and representatives from other sections of the State poured in petitions for an immediate session.

Governor Sterling said the demand was "ten to one" for a session.

Tom Cranfill, author of the East Texas plan now being tried out, said a law immediately effective, or one to curb new drilling might be effective.

Capt. J. F. Lucey of Dallas, chairman of the arbitration committee, told Governor Sterling that sentiment in East Texas was divided over the session, and that he wouldn't take sides because he wanted his committee to hold the unanimous agreement just won for voluntary control.

Would Appeal to President

Captain Lucey told the Railroad Commission, in an informal hearing that the Arkansas Fuel Oil Co., one of the Cities Service companies, was among the main violators of the agreement in East Texas, and that the committee wanted to appeal, with state consent, to President Hoover to ask Henry L. Doherty to bring his company in line.

He said the committee also was to ask Secretary of Commerce Lamont to call a further conference in an effort to curb oil imports.

Captain Lucey told Governor Sterling the recent production was about 317,000 bbls. daily in the East Texas Field, and that the voluntary agreement had cut down the amount 55,000 bbls. a day. "We hope for better observance if the agreement is validated by order," he said. Continuing, he said the ultimate total under the voluntary agreement is 500,000 bbls. daily.

Many Violations Cited

The oil operators admitted there had been 53 violators of the Railroad Commission's present proration order. They said companies were not connecting up to independent producers where the companies had oil of their own.

They conceded that about a dozen East Texas producers were violating the "gentlemen's agreement" that started last Saturday. But, they said, a new order ratifying the plan was desired, since public sentiment was behind it, with the idea that it would stop the violations.

"Do you have any objections to a law that will prevent those violations, if you can operate by agreement?" Governor Sterling asked Tom Cranfill and other speakers.

"Yes, I have," Mr. Cranfill answered. All except Captain Lucey discouraged calling of a session, their reason being, as stated by Myron G. Blalock of Marshall, "We think this plan will work."

The committee left Governor Sterling with the request that he give the new plan 10 days' try-out. He made no promises.

Railroad Commissioner Pat M. Neff, in the commission hearing, declared his stand in favor of an immediate order. The other two commissioners did not commit themselves. Later Commissioner Smith said it "looks like there will be no order before the twenty-ninth," when a new proration hearing is held. Chairman C. V. Terrell declined to commit himself.

Spokesmen told the Railroad Commission that the major companies, if sustained by a state order, will take steps to connect up the small operators to pipe lines and accept oil ratably from the fields. Two major pipe lines will be completed by June 10, they said. It was also said that the area of the East Texas Field is now defined.

Secretary Parten of the arbitration committee explained to the commission as a basis for purchasers' nominations for the future that daily deliveries for the week of June 10 was: Tank cars, 111,708 bbls.; pipe lines, 184,852 bbls., and to local refineries, 21,299 bbls., a total of 317,857 bbls. daily. He said that under the unit area plan big companies will buy more than they produce.

Myron G. Blalock told the commission that public sentiment will help enforce the unit plan under state sanction through the filing by owners of adjoining lands of injunction suits against anybody violating the orders.

If the Cranfill plan fails, as many are expecting it to do, and many others so hoping, backers of it are ready to drop the plan and adopt some other which might be effective, but to date no other plan has been presented, opponents of the Cranfill plan not offering another, but desiring a special session of the state legislature to give the Railroad Commission full powers to enforce the proration plans which have heretofore been in use in East Texas and other districts, and which are considered as efficient enough if given sufficient backing by law. However, those who are favoring legislation are working on a bill which they hope to have passed at such a special session if it is held, taking parts of conservation bills which are in force in California, Kansas and Oklahoma, and inculcating them into one bill with several other features which are believed necessary to regulate production in the State of Texas. Such a bill should be exceptionally meritorious if properly and carefully drawn, with due consideration given to the small as well as the major operator and producer.

The Cranfill Plan

The revised Cranfill plan provides the following rules for the production of oil in East Texas:

"Rule 1. The fields known as Lathrop, Kilgore and Joiner Fields, having been shown to be practically one geological area, shall be treated as one field and known as the East Texas Field.

"Rule 2. Until further order of the railroad commission, oil produced in the

(Continued on Page 126)

Export Outlook for the Last Half of 1931

Some Sellers Expect to Increase Business With Low Prices. Russia Will Continue to Be Important Factor

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, June 20.—Export petroleum operators will go into the second half of 1931 with considerable more optimism than was the case at the beginning of the year, but in so far as actual data on the export outlook for the six months' period beginning July 1 is concerned, export operators in the East concede frankly that the immediate outlook for their business is "anyone's guess," and confess that as far as actual information is concerned, they are as much in the dark now as they were at the start of 1931.

While operators are unwilling to go on record with any statements or predictions regarding the outlook for the closing half of the year, however, it is evident that sentiment is much improved over that evidenced early in the year, and this notwithstanding the reported threat of the Soviet to continue to undersell United States refiners in foreign markets regardless of price.

There is no disguising the fact that the Soviet naphtha syndicate is at present the chief menace to the American oil export trade, and there is no disposition on the part of American operators to underestimate Black Sea competition. Russia enjoys many advantages over the United States oil industry. In the first place, Russia is producing crude from properties which represent no substantial investment on the part of the Soviet. She is producing, refining, and shipping petroleum and products at a labor cost so greatly under that prevailing in the United States that there is no comparison. In addition, Russia's refining industry (due largely to American construction and technique in operation) ranks with the most modern in the world, giving Russia maximum output of motor fuel. To add to all of these advantages, Russia enjoys a freight rate differential, in shipments from the Black Sea to United Kingdom Continent ports, equivalent to one-quarter cent per gallon under the corresponding rate for shipments from United States Gulf ports to United Kingdom Continent destinations.

Cables received by operators here during the past week, following the radical price reductions on export gasoline and kerosene at United States Gulf ports, stated that Russian sellers have informed their buyers in Europe that they are prepared to meet any price quoted on petroleum products from the United States and beat it by at least one-quarter cent per gallon.

All of the foregoing is adequate testimony as to the type of competition which the United States may expect from Russia during the closing half of 1931 and in succeeding years.

Rumanian Situation

Rumania during the first half of 1931 was another major factor in the decline in export trade in gasoline and other refined products from the United States. The outlook in this direction, however, is more encouraging for the second half of the year. Substantial progress toward rationalization of production of both crude oil and refined products has been made recently in Rumania, and while competition from that country in European markets is not expected to diminish to any substantial extent during the balance of 1931, it is indicated that Rumania will not continue to offer its motor fuel and other products at the ruinous prices which prevailed there during the first half of the year.

While data on the export gallonage from the United States for the first six months of 1931 are not yet available, reports from leading companies indicate that their business, from the standpoint of volume, compares favorably with that of 1930, although from a monetary standpoint substantial declines are shown. The major integrated companies, however, with established outlets for their products in principal foreign consuming countries, did not suffer from Russian and Rumanian competition this year to the extent of many of the relatively smaller exporting interests in the United States, and it is probable that aggregate gallonage for the country as a whole will show a substantial falling off for the six months just ending, in comparison with the similar period last year.

Position Strengthened

Discussing the outlook for export gasoline business during the second half of 1931, one market factor here said: "As far as actual information on the outlook for the second half of the year is concerned, there is none. Your guess is as good as mine. Discussing the outlook purely from the angle of expectations, however, I would say that we have a good deal more to look forward to now than we had at the start of the year.

"Heavy production of cheap crude in the East Texas area has given sellers out of the Gulf a plentiful supply of cheap gasoline. Regardless of Russia's reported threats, a number of our sellers at the Gulf are in just as good a position now to compete for bulk business in Europe and elsewhere as the Soviet, and the fact that a number of cargoes were booked recently by Gulf sellers bears out this view.

"Regardless of possible curtailment in East Texas it appears probable that the situation there over the balance of the year will be such that the refiners running oil from the flush pools in that area will continue in a competitive position, and that Gulf sales for export will substantially exceed those of the first half of the year."

Another export operator, who likewise refused to be quoted direct, said: "Our bulk sales for the first six months of 1931, as far as gallonage is concerned, will compare very favorably with those for the first half of last year, and there is a good chance that when final figures are in we will find that they have run ahead of 1930. This, of course, refers only to sales in gallons; from the standpoint of monetary volume, we have naturally shown a severe drop from 1930."

A third operator takes the position that a substantial export movement in crude oil will continue throughout the second half of the year, and that while export volume in refined products will continue to reflect the sharp competition afforded by other producing and refining countries, the total for the period will nevertheless show a gratifying increase over volume rolled up during the first six months of the year.

In connection with the threat by the Soviet to continue to undersell American refiners abroad, it is pointed out that all of the major integrated companies in the United States have written their inventories, both of crude and products, down to present price levels, and that as a result of this they will be in favorable condition to meet Russian price competition wherever it develops. Many of the large American companies have suffered extensively from the inroads of the Soviet and Rumanian sellers, and now that they have plenty of ammunition of their own, in the form of low-cost products, it is confidently expected in many quarters that they will begin to fight back in an effort to hold their markets.

South American Business

While sentiment regarding the outlook for business in the bulk market is, on the whole, favorable and optimistic in tone, sellers who have been specializing in the sale of cased products to South American, South African, and other markets, are less cheerful. Russia has scored heavily in making inroads into a number of these markets with her cased gasoline and kerosene and the outlook indicates a greater intensification of this competition during the balance of the year. Thus far, one of the most potent factors favoring American cased petroleum products in these foreign markets has been the good-will which the American brands have enjoyed, but the Soviet is making a determined effort to build up good-will for its own brands and is meeting with considerable success in this direction, notably in South America.

Final settlement of the Spanish Petroleum Monopoly's contract business will have an important bearing on American exports during the six months starting July 1. Following the overthrow of the Spanish monarchy a few months ago, came the news of the abrogation of the monopoly's contract with Rumania, which

(Continued on Page 126)

POOR MATERIAL AND UNDUE HASTE CAUSE ACCIDENTS IN EAST TEXAS FIELD

By L. G. E. Bignell
Petroleum Engineering Editor

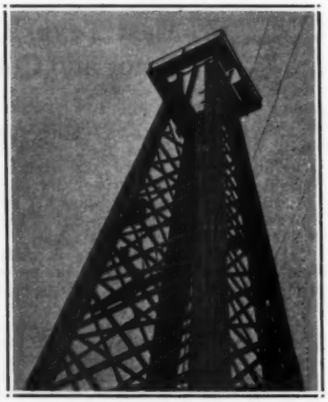
The accompanying pictures will tell their story and serve to illustrate the well-known fact that modern rotary drilling practice requires that only the best of everything be used at the well if the safety of the workers and property is to be insured.

This derrick was built in the East Texas Pool and made from native lumber, perhaps not properly seasoned, and certainly not selected with care as to its strength, for the crown block and water table failed when the tools were being run into the hole. Fortunately no one was hurt but how the men on the derrick floor escaped is hard to explain excepting that the warning given by breaking and tearing of the wood gave them notice in time of the danger and they scrambled to safety.

This derrick cost approximately $1,000 at the most and it is reported that during the height of the boom some contractors were building rigs for as low as $750 and furnishing the lumber and other material required.

Past experience gained through many serious accidents have shown that a structure of this kind that is to be used at a rotary drilled well must be of the best, for the strains set up in handling pipe and casing are tremendous. In this instance it was stated that "they were only running in" but that does not signify to the average operator the extreme load that is applied to the derrick.

It has been estimated that load of impact is equal to four times the dead load and under the conditions set up during running a string of pipe into the hole



Wrecked wooden derrick in East Texas oil field.

Crown and traveling block with lines after failure of top of wooden derrick, East Texas oil field.

(Continued on Page 126)

East Texas Oil Along Old Shore Line

In Earlier Geological Time There was Large Circular Island 100 Miles Across in Cretaceous Sea

By E. G. Woodruff
Consulting Geologist, Tulsa

When the Joiner discovery well (Joiner and others' No. 1 Bradford, Juan Ximines Survey, Rusk County, Texas) came in last December, the petroleum industry gave it very little attention; but when Bateman's No. 1 Crim, 10 miles north, and No. 1 Lathrop, nearly 15 miles farther north, were finished it appeared that a series of real oil pools had been opened. Because the surface did not indicate favorable geological structure there was a chaos of ideas as to the subsurface geological structure, extent of the pool, its trend, thickness of sands, etc. In fact, there was only a series of wild guesses. Now, however, with so many wells (nearly 1,000 either completed or deep enough to show conditions) certain important principles have been developed. It is the purpose of this paper to outline the geology and other features even before the most final conclusions have been reached because there is so much interest in this immense oil field.

The field is in northeast Texas, 120 miles east of Dallas, and 65 miles southwest of Shreveport. The area embraces the western part of Gregg County, northwestern Rusk County, a narrow strip in southern Upshur County and a narrow section in southeastern Smith County. It is 37 miles from the most northern to the most southern well. At the widest place the field is more than 7 miles across and at the narrowest it is more than 3 miles. The east margin is very definitely fixed and the west line approximately determined. There is good probability that wells will be brought in a considerable distance to the north and somewhat farther to the south, though it seems reasonable to expect that all limits have been nearly determined. This area embraces 160 square miles (approximately 100,000 acres) and possibly as much as 170 square miles. It is the largest oil field in the world.

Geology

The following well record shows the kind of formations which are encountered in drilling.

LOG OF NO. 1 FINNEY.
H. L. Hunt, trustee, Penny and Parker Survey, Rusk County, Texas. Completed April 12, 1931.

Formation—	Depth (ft.)	
Surface clay	0 to	45
Clay, sand, gravel	45	185
Sand, shale, shell	185	925
Hard sand rock	925	930
Shale, boulders	930	1,001
Shale	1,001	1,020
Rock	1,020	1,023
Shale	1,023	1,118
Rock	1,118	1,119
Sand and shale	1,119	1,190
Rock	1,190	1,192
Shale and shells	1,192	1,305
Rock	1,305	1,306
Shale	1,306	1,339
Rock	1,339	1,340
Shale and shells	1,340	1,565
Packed sand	1,565	1,605
Sand rock	1,605	1,608
Sandy shale	1,608	1,610
Gummy shale	1,610	1,690
Shale, boulders	1,690	1,710
Sticky shale	1,710	1,795
Shale and chalk	1,795	2,110
Sandy shale	2,110	2,420
Gummy lime and shale	2,420	2,507
Broken chalk	2,507	2,535
Soft chalk	2,535	2,626
Hard chalk	2,626	2,789
Pecan Gap chalk	2,789	3,030
Broken chalk and shale	3,030	3,280
Broken shale, shells	3,280	3,458
Austin chalk	3,458	3,539
Broken chalk and shale	3,539	3,566
Lime	3,566	3,583
Sand	3,583	3,645
Woodbine sand	3,645	3,669
Sand and shale	3,669	3,683

Cretaceous and Tertiary

These formations are of Cretaceous and Tertiary age. The lowest is the Georgetown, which probably underlies all of this region. It is a moderately hard gray limestone with various soft shale breaks. The character of the formation must be determined from well records because there are no exposures in the region. The Amerada Petroleum Corp.'s No. 1 Wade, in Upshur County, drilled 6,153 feet and was still in Georgetown lime formation when the hole was abandoned.

In the East Texas Field the Woodbine is just above the Georgetown. The Woodbine is a prevalent sand, though there are many shale partings. Both the shale and sand vary greatly in thickness and character after from place to place. In the Van Pool this formation is as much as 150 feet thick, whereas on the east edge of the new field it thins to a few feet and is entirely absent immediately to the east of that field over the Sabine Uplift. This is the oil sand formation at Mexia, Powell, Van and in this field.

Immediately above the Woodbine there are shale and sand beds. It is generally accepted that these are the Eagle Ford formation and that the lenses of sand were originally Woodbine which was lying on the Georgetown High and washed down and redeposited in Eagle Ford time. In character these sands are like the real Woodbine and the final determination of the geological age must wait for a determination of the fossils in the shale.

In the field these sand lenses contain oil, in fact they are generally saturated. These beds make excellent reservoirs, but, because they are in lenses, there is no regular water pressure behind them and "the head goes off the well quickly." The porosity is reported to be about 20 per cent.

The Austin Chalk

The Austin chalk is above the Woodbine and Eagle Ford. This is a compact limy formation containing a high percentage of clay. It is easily distinguished by its hardness and gray color in contrast to the tan colored shale below and the black Taylor marl above. The thickness varies over the field. One well reported only 60 feet, whereas another showed 167 feet. The Austin is generally less than 100 feet.

Above the Austin there are a group of formations with black shale in the lower part and sandy tan colored ones above. This group is about 450 feet thick, though one well reported as little as 434 feet and another as much as 595 feet.

The next formation in ascending order is the Pecan Gap, which is a gray chalky formation about 425 feet thick. However, the records of wells vary greatly in recording the thickness of this formation because the shales above merge into the chalk and the drillers have no quick change of formation to record accurately. Some record the first show of chalk whereas others accept the hard part of the chalk. Many maps are presented to show the structure on the top of the Pecan Gap. These are unreliable except in a major way.

Above the Pecan Gap there are shale and sandstone beds. The shales are generally sandy, though some are correctly classed as gumbo. This group of formations vary from 2,500 to 3,000 feet in thickness according to the position of the well in the field, the westernmost ones having the thicker section. These strata are easy to drill, generally only three days being required to drill the first 2,500 feet in the well.

Oil Along "Shore Line"

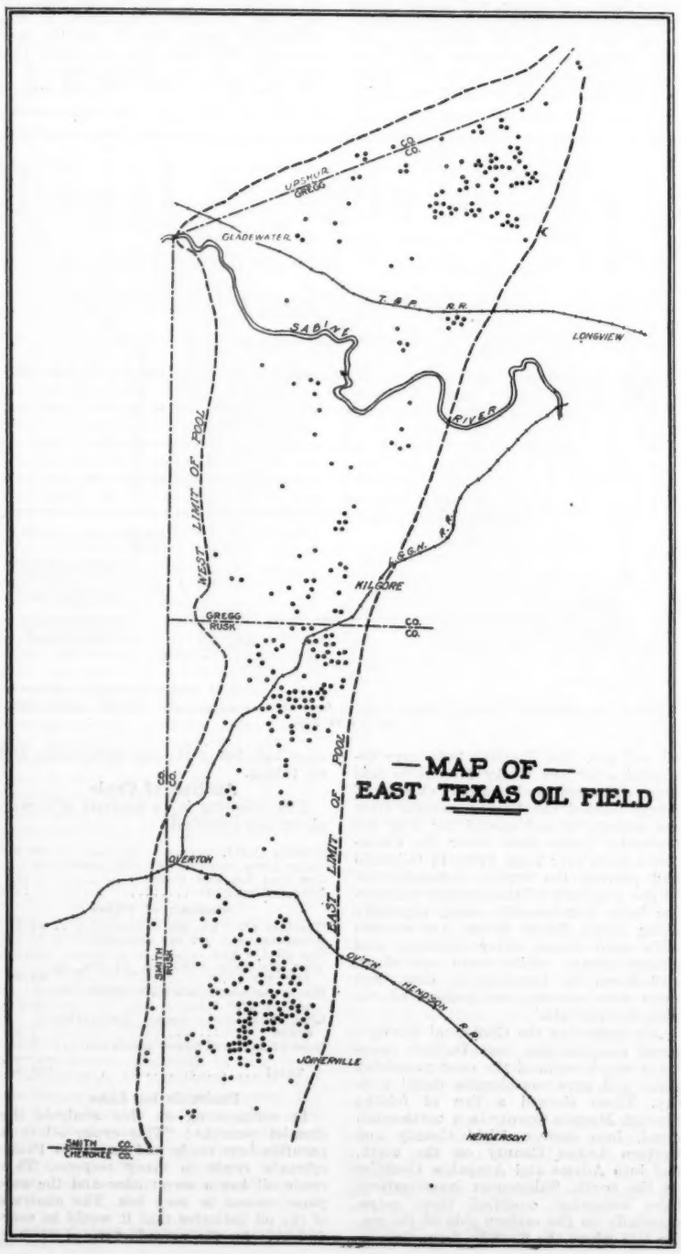
The accumulation of the oil in the East Texas Field is along an old "shore line" and not the usual anticline or dome structure. In fact there is no "structure" or other surface feature which would lead a geologist to make a location in the field. This "shore line" is where the ocean was along the land in ancient time. In earlier geological time there was a large circular island in the Cretaceous sea; it was approximately 100 miles across and the highest part was in the vicinity of Shreveport. There was sea about this island and part of the shore was across Gregg and Rusk Counties with shallow water to the west in Upshur and Smith Counties. Though the island was not very high at any time it was elevated enough in Woodbine time for the sandstones of that time to wash down and be redeposited along the shore. These form the upper sands which now bear oil and the undisturbed Woodbine the lower group of sands. The erosion continued until the Georgetown limestone was bare over most of the island hence there are no sands to the east of the field over a big area.

As a result of these geological movements and the erosion the Woodbine sands are slightly tilted against the Georgetown high sand and above these sands are the irregular beds of sand and shale also dipping westward. It is just a big wedge of formations with the sharp edge to the east and the thicker part to the west and lower in that direction. Below these strata there are limestones through which the oil cannot pass and above are impervious beds through which it cannot escape, hence the oil is trapped. The fluids are therefore held in the sands with the oil in the higher parts to the east and the water below and in the lower part to the west.

Discovery of the Pool

Several thousand oil and gas wells have been completed over the Sabine uplift in the Shreveport region. The main

(Continued on Page 98)



Northeastern Colorado Potential Area

Continued Belief That It May Develop a Major Pool. Estimated Million Acres Under Lease in Region

By Tolbert R. Ingram

DENVER, Colo., June 22. — Eight months have passed since the Platte Valley Petroleum Corp. encountered oil on October 10, 1930, in its No. 1 Patterson, a rank wildcat, in the NE SE NW Section 24-6n-61, on the Greasewood Dome, in Weld County, northeastern Colorado. Although the importance of this discovery was generally known and operators were almost unanimous in the belief that a major pool comparable with some of the larger pools in the Mid-Continent Field will be opened eventually, only one well has been spudded in the intervening period. Nothing has occurred in the meantime to alter this opinion. On the contrary, the investigations which have been made tend to confirm the earlier expressions and it is estimated that in the neighborhood of a million acres of land has been leased in a territory almost as big as the State of Indiana. The discovery attracted attention not so much to a promising local structure as to a general region in which there is every reason to believe there are a number of structures which are potential oil or gas fields.

The area which was brought into the oil picture by the Greasewood discovery embraces a territory approximately 150 miles wide and 200 miles long in northeastern Colorado. It lies to the east of the main range of the Rocky Mountains, which traverse Colorado in a north-south direction through the center of the state, and north of a continental divide that runs east from Palmer Lake. This area is referred to as the Denver Basin by some writers and as the Julesburg Basin by others. Some reconnaissance surveys which have been made indicate that the basin extends much farther north and takes in the eastern part of Wyoming, the western part of Nebraska and the southwestern part of South Dakota. Up to this time, however, the geological investigations and leasing have been confined mostly to the Colorado area.

Preliminary Drilling

Sporadic attempts to find oil in eastern Colorado have been made over a long period of time, but the interest was not general until November 11, 1923, when the Union Oil Co. of California brought in an 80,000,000-foot gas well in its No. 1 Union Pacific, Section 31-10-68, on the Wellington Dome, in Larimer County, in the Muddy sand, which was topped at 4,285 feet. In the following year considerable attention was given to the plains region to the east of the mountain range and the Wellington discovery. On October 21, 1924, the United States Geological Survey released a press memorandum on the prospects of developing new oil and gas fields in northeastern Colorado following geological work done by Julian D. Sears, James Gilluly, Ralph G. Lusk and Kirtley F. Mather. A more detailed report on this work was made in 1928 in Bulletin 796-B on the Geology and Oil and Gas Prospects of Northeastern Colorado. Prior to this report, the Greeley Chamber of Commerce brought about an investigation by Charles S. Lavington, under the direction of R. D. George, state geologist, which was published under the title "Reconnaissance of the Cretaceous Area of Weld County, Colorado." The Colorado State Geological Survey, which was headed by Doctor George, also published in 1924 Bulletin No. 20 which was accompanied by a map of the area.

The Geological Survey's press memorandum issued on October 21, 1924, gives the following summary of rocks exposed in the region:

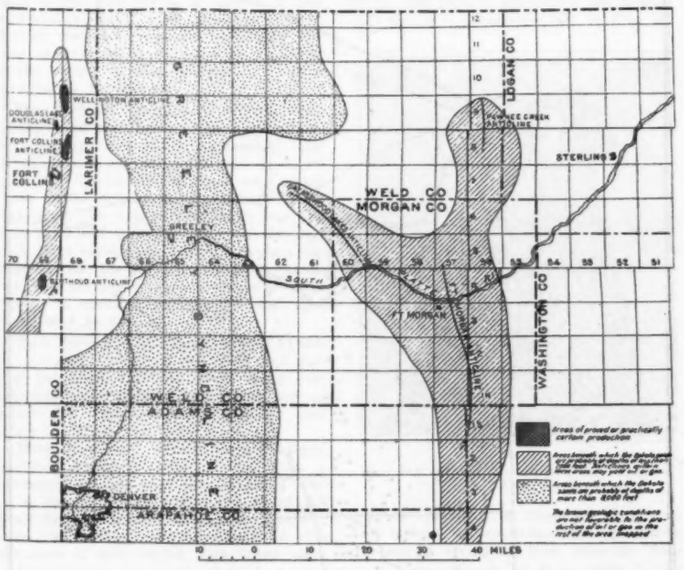
Geological Survey

"Northeastern Colorado is underlain by sedimentary rocks of Cretaceous and Tertiary age. The Cretaceous beds, which consist largely of shale and sandstone but include some limy beds and coal, were deposited before the upheaval of the Rocky Mountains. Most of the lower beds of the Cretaceous were laid down on the floor of a cast shallow sea, which covered all this part of North America. Near the end of the Cretaceous period the sea dwindled in size and became shallow until it finally disappeared from Colorado, leaving only fresh or brakish water lagoons, lakes and marshes. In these bodies of water, and on the flood plains of rivers, where part of the vegetation was buried and changed to coal, the uppermost Cretaceous beds were formed. The lower beds of the Cretaceous are the sources and the reservoirs of the oil and gas. The Tertiary beds were deposited after the Rocky Mountains had been upheaved and consist chiefly of debris washed out by the streams from the mountains and spread far over the lowlands. Today they cover the Cretaceous rocks over large areas in Colorado and prevent the surface determination of the structure of the possible oil-bearing beds. Considerable areas, especially along South Platte River, are covered with sand dunes, river alluvium and stream gravel, which were laid down still later, in Quarternary time, and these also obscure the geology of the underlying strata."

Accompanying the Geological Survey's press memorandum and Bulletin were maps which outlined the most promising areas and gave considerable detail geology. These showed a line of folding through Morgan County in a north-south trend, into eastern Weld County and western Logan County on the north, and into Adams and Arapahoe Counties on the south. Subsequent investigations have somewhat modified these maps, especially on the eastern side of the major fold where the Foxhills formation indicated a reversal. The map issued by the Colorado Geological Survey in Bulletin No. 20 has been more generally sustained in the recent investigations.

Greasewood Dome Test

In spite of the favorable nature of these reports, comparatively little leasing or prospecting took place in eastern Colorado. One exception was the Platte Valley company, made up of local men, which spudded in its test on the Greasewood Dome on May 5, 1926. This well was drilled intermittently and under many disadvantages until oil was encountered on October 10, 1930. The oil was found at a depth of 6,640 feet and the well started flowing by heads every four hours. On December 4, 1930, the test was drilled 16 inches deeper, increasing the production to 130 to 150 bbls. daily. On December 7, 1930, it was drilled 14 inches deeper and increased its production to 180 to 190 bbls. per day. On December 14, 1930, it was drilled 30 inches deeper and the well averaged 350 bbls. per day from that time down to the present date. It is still flowing by heads with 40 feet of open hole below the 4¾-inch casing and no tubing.



—United States Geological Survey.

Map of northeastern Colorado showing areas favorable or unfavorable for the occurrence of oil or gas.

Analysis of Crude

The following is an analysis of a sample of this crude oil:

Gravity A.P.I.	40.8
Color (10% solution ⅛" cell Lovi)..	55
Per cent b.s. and water	.20
Per cent sulphur	.084

Summary of Yields

Gasoline (55.7 gr. 405 endpoint).. ..	30.87
Kerosene (41.1 gr. 520 endpoint)....	12.13
Gas oil (36 gr.)	12.10
Wax distillate (31.5 gr. 84 vis. at 100° F.)	26.90
Steam refined stock (550 flash, 167 vis. at 210° F.)	15.60
Loss, fire and steam distillation crude	1.25
Loss distillation heavy naphtha.....	1.15
Total	100.00

Desirable for Lubs

In commenting on this analysis the chemist remarks: "This crude oil is a paraffin base crude and resembles Pennsylvania crude in many respects. This crude oil has a sweet odor and the sulphur content is very low. The analysis of the oil indicates that it would be very desirable for the manufacture of viscous and nonviscous lub stocks. It will be noted especially the flash viscosity relation in case of the steam refined stock is very good. The wax distillate and steam refined stock fractions contain a considerable quantity of paraffin wax, the content of which is in excess of that found in the average Mid-Continent crude."

Exploration and Leasing

Under normal conditions, or conditions similar to those following the discovery of oil in East Texas, an extensive exploration campaign might have been expected in northeastern Colorado. While such a campaign is considered a certainty at some future date, it has been held in abeyance on account of the unsettled conditions in the oil industry and a desire upon the part of the operators to avoid bringing in a major pool and flooding the market with more flush production. There was no delay, however, in rushing in the scouts for the major companies and following their reports on the situation, extensive leasing took place. This was not confined to the Greasewood district, but extended to many other areas in eastern Colorado. Geological work was carried on by a number of the major companies and extensive investigations were made with the aid of the magnetometer, the seismograph and the torsion balance. The land departments avoided taking leases that required drilling within specified limits of time and most of them ran for 5 to 10 years and were made out on the regular 88 Producers form. Bonuses paid for leases in the Greasewood district ran from $3.50 to $100 per acre, depending upon the location. In other areas there was a wider spread and the amounts paid in cash ranged from 50 cents per acre up. Among the major companies represented are the Midwest Refining Co., the Texas Production Co., the Ohio Oil Co., the Continental Oil Co., the Indian Territory Illuminating Oil Co., the Magnolia Petroleum Co., and others. A number of smaller Mid-Continent operators are included in the list. Altogether it is estimated that around 1,000,000 acres have been leased, some of it in solid blocks, but mostly checkerboarded. State land under lease on November 30, 1930, included the following:

County—	Acres
Adams	7,440
Arapahoe	6,520
Baca	53,160
Bent	35,620
Cheyenne	39,000
Crowley	4,800
Kiowa	46,282
Kit Carson	38,320
Lincoln	16,360
Logan	7,720
Morgan	42,680
Otero	9,200
Prowers	41,370
Phillips	6,800
Washington	18,280
Weld	44,120
Yuma	23,760

Drilling Offset

Following the bringing in of the Greasewood well, the Platte Valley company, which had drilled it to the sand and the stock of which was widely scattered, underwent a reorganization. Its leases required several wells to be undertaken this year and it was decided that the best method was to unite with some stronger company in a joint program. There were several of the major companies in negotiations, but on April 10 a contract was signed with the Reiter-Foster Oil Co. This contract provided for the drilling of an offset to the discovery well at once. This well, No. 1 Ida Johnson, C NE NW Section 24-6n-61, spudded on May 8 with rotary tools, and is being drilled by Manning & Terry, Inc., under contract. It is below 5,000 feet at this writing. In addi-

(Continued on Page 123)

Effect of Shutting in Producing Wells

Experience of Different Companies Has Shown Increased Yield Resulted in Many Instances. Should Study Each Case

By L. G. E. Bignell
Petroleum Engineering Editor

With crude oil at its present low price it is an ever increasing problem for operators to produce it and not lose money, to say nothing of possibilities for making a profit out of the transaction. One operator in West Texas recently stated that his margin of profit had the value of a 2-cent postage stamp, and many operators in the old settled areas of Kansas and Oklahoma will be forced to shut down their properties if the low price maintains much longer.

With this problem of shutting in wells now facing the industry it is thought that benefit might be derived from a discussion of the effect of shutting in wells, the best methods to be followed if a shut down is necessary, and the general results such actions will have upon the future for old fields and the industry as a whole.

In the past there has been many instances when pools and perhaps large areas were forced to shut down and by making a check of the observed effect of such practices on those wells it is possible to form some conclusions as to what may happen when many more properties are so handled now.

Engineers and production men all agree that the individual well and its position on the structure, the amount of water produced with the oil, the source of the water, production methods and numerous other local conditions will largely influence decision regarding shut downs.

There also seems to be a consensus of opinion among those familiar with production problems that any well can be shut in without materially changing the ultimate results that would be obtained, because if it is so located that it goes to water entirely when shut in the chances are that it would have gone to water quickly even if it had been pumped. In other words, if it is most economical to shut in a well now rather than continue to produce it at a loss it should be shut in for the first consideration is the matter of profit and with the present known mechanical methods to be used in reconditioning wells, it is fairly safe to go ahead and shut down if a profit cannot be made.

Cleaning Out First

A suggestion was made that if a well has to be shut down it should first be cleaned of sediment and accumulations in the hole and left in the best possible condition to withstand changes that may come about because the fluid was no longer withdrawn. Such a cleaning would contemplate removing sand and shale that had sloughed off of the walls of the hole and settled in the bottom of the well, the removal of paraffin and calcareous shells from the face of the producing sand and in general leaving the hole as free of foreign material as possible.

Such a cleaning out was recommended to reduce to a minimum the possibilities of fine suspended material being forced back into the sand and clogging pore space as the fluid column built up in the hole during shut down period.

It was also suggested that with small wells the opening of sand faces in the hole might have an added advantage in that oil could then accumulate in the cleaned well during shut down period instead of being drained from the area by offset wells that might still continue to produce. Small change in underground conditions sometimes have marked effect upon the amount of oil to be obtained and as pressure differentials in the sand always affects the rate of production it is logical to assume that more oil will flow from a well cleaned sand face than from one in which the pores are clogged.

In the mining operations in Pechelbronn, France, it has been observed that oil will seep freely from a freshly opened sand face but gradually subside as waxes and heavy oils are deposited as the oil is withdrawn. This decrease in flow has been noted to start near the top of the exposed sand face where the pressure back of the oil is lowest and extend downward until practically all natural flow ceased. It is the practice there to then break away 18 to 24 inches of sand from the face of the drift to expose a fresh sand face when oil seepage again starts.

It is stated that in the Nowata County, Oklahoma, area some experiments have been tried by drilling holes in the dry formation below the producing sand to form a sump or reservoir in which the oil will accumulate as it runs from the formation and in this way the pressure against which the well must produce is lowered. This practice has shown some increase in production and gives quite conclusive evidence that a clean sand face is essential to a higher rate of production.

Against this suggestion to clean wells before shutting them down other engineers have stated that where a company owns a great number of old wells that must be shut down because they are unprofitable to operate at this time the total cost of such operations would not be justified. Some companies have several hundred wells that show little or no profit and even at a cost of only $100 per well for cleaning, which is considered a minimum amount, it would cost $10,000 per 100 wells which would be an outlay difficult to justify at a time when the wells have already shown no earning power.

Past Experience Cited

With modern engineering practice it is possible to do a great many things to a well that formerly were impossible and this has its effect upon the general trend of thought toward favorable consideration of shutting in production if for any economic reason it becomes necessary. Executives have changed their attitude in this, as in many other matters, as the mass of data have been built up by engineering practice and now take the position that if a thing is worth doing there is some mechanical way for it to be done, so they leave to the production and engineering department the details of shutting in and opening up production as their orders are issued based upon an economic survey of the situation.

For some time the Prairie Oil & Gas Co. has been following the Sunday shut down practice in the Burbank, Glenn and Cushing Pools and over 200 wells have been so handled without any appreciable loss in production. In fact on 16 leases where Sunday shut down has been in effect over a long period of time it has been found that there has been a marked increase in production, while 1 lease showed no change and 6 leases a slight decrease during the first eight weeks of the practice and then dropped off as much as 9 per cent in production but have since then gradually come back to

(Continued on Page 103)

Legal Aspects of Gas Conservation

Present Laws and Methods of Production Declared to Need Considerable Overhauling and Readjustment to Facts

By Robert E. Hardwicke
Fort Worth, Tex.*

The law of oil and gas has not kept pace with the facts and principles which have been established by geologists and petroleum engineers. To a certain extent such a condition cannot be avoided. It is also generally accepted that the law of oil and gas is replete with property rules based upon assumptions of fact which have been disproved, and that inconsistent and contradictory legal principles have grown up which have played a large part in bringing the oil industry to its present status of instability.

As compared, for instance, with commercial or real property law, the law of oil and gas is only in its infancy. With meager knowledge of the characteristics of oil and gas, it is not surprising that the earlier cases, which became precedents, were decided upon theories which were not entirely accurate. The courts quite naturally undertook to apply, at least by analogy, long established principles of other branches of the law, and especially of real property law. For instance, some judges compared oil and gas to coal and iron. It is obvious, however, that such analogy is imperfect, since hard minerals are stationary, and operations in one mine have no effect upon the minerals in the adjoining land. Other judges reasoned that oil and gas move about underground with considerable freedom, being here today and there tomorrow and, consequently, there could be no such thing as ownership in place of such migratory substances. They were likened to wild beasts or birds, and thus would become the property of the man who was fortunate enough to capture or to reduce them to possession while they were temporarily under his property. We now know that oil and gas, when once trapped in the reservoir, are stationary and in a state of equilibrium until, as by drilling a well, the reservoir is penetrated, thus causing a movement toward the well bore, the area of lower pressure. Other judges argued that oil and gas were quite similar to percolating waters and, therefore, the law applicable to such waters should govern questions of oil and gas. This analogy was fairly close but incomplete, as percolating waters, though exhaustible at times, are renewable, and migrations are not influenced by gas pressure.

*Before division of production, A.P.I., Dallas, Tex.

Ownership in Place

Courts and lawyers are still vigorously debating the question of whether oil and gas are subject to ownership in place. The courts of the various oil-producing states are about equally divided on the question. Due to the peculiar characteristics of oil and gas, and especially their ability to migrate, the courts in some jurisdictions hold that ownership cannot exist until the oil and gas are actually reduced to possession. Some of these courts go further and declare that the surface owners have a community of interest in the pool, and, consequently, one owner should not be permitted to waste the common supply. Carrying the doctrine to its logical conclusion means that no one should have more than his fair share of the minerals. As yet no rules of law have been established which will bring about that result.

In other states it is held that, since an owner of land owns to the center of the earth, he necessarily has title to whatever oil and gas may be in or under his land, and the rights exist to appropriate whatever minerals may be produced by operations on the land, even though such minerals may migrate from adjoining tracts. This rule of property follows that relating to percolating waters.

Where no question of conservation or police power is involved, the courts uniformly hold that an operator, by wells drilled on his lease, may drain oil and gas from under his neighbors' property, without any liability whatever. The remedy of the neighbor is to drill offset wells. This rule was originally predicated on the theory that it was impossible to establish the source of the oil and gas, therefore no substantial proof could be had as to the amounts of oil and gas which were drained from under another's land. Curiously enough, the same courts later held that, when a lessee fails to drill offset wells, the lessor may collect damages based upon the amount of oil and gas drained from under his land. The court or jury, from the evidence, determines to a barrel and cubic foot the amounts of oil and gas which pass from one tract to another. In other words, we have the anomaly of a court declaring a rule of property based on the impossibility of determining the source of oil and gas, and on the same day upholding a verdict in a damage suit in which the exact source, and the extent of their migrations, are proved to the barrel or the cubic foot. In one breath a court holds that an owner is entitled to his share of the minerals in the pool, and in the next breath refuses to enjoin a neighbor who is taking more than his fair share. Some courts hold that oil and gas in place are absolutely owned by the landowner under whose lands they may lie, but at the same time they hold that his neighbor can drain away every barrel of oil and every cubic foot of gas, even though the amount can be proved exactly, yet the landowner has no suit for damages and cannot enjoin the taking of what is admitted to be his. Such a doctrine is against all notion of ownership, and it is no answer to say that full protection may be secured by drilling offset wells.

We are not now concerned with whether the ownership or nonownership theory is correct. It is enough to say that the doctrines and their corollaries were founded on assumptions of fact which now seem erroneous or at least are not the full facts. And, whatever may be the rights of one landowner with respect to his neighbor, the State is con-

(Continued on Page 125)

Proration Develops New Kind of Suit

Turman Oil Co. Charges Offset Lease Owners Drained Its Leases in East Texas After Proration Rule Was Made

By Special Correspondent

SHERMAN, Tex., June 20.—The suits of the Turman Oil Co. against the Luling Oil Co., and the Turman Oil Co. against the Linn-Tayloe Oil Co., Bill & Dave Oil Corp. and Lide-Rowe Oil Co., Inc., three corporation said to be dominated and officered by the same persons, have been set for hearing before Judge Randolph Bryant of the District Court of the United States for the Eastern District of Texas, in this city, Wednesday, July 8. The cases are attracting nation-wide attention in the oil industry because some of the conditions under which the suits were instituted are said to be different from those surrounding similar suits in the past.

The suits are brought to enjoin trespass, other equitable relief and for damages, the Turman Oil Co. alleging that the defendant companies are draining Turman leases in the Kilgore Pool in one case, and in the Joiner Pool in the other case.

The plaintiff claims that following the order of the Texas Railroad Commission limiting the allowable production of the East Texas Field to 160,000 bbls. per day it acted in obedience to the order, while the defendants, each and all of them, produced their oil regardless of the order, thereby draining the properties of the Turman company and causing permanent damage and irreparable injury for which it asks damages. In the case against the Luling Oil Co. the Turman company claims $113,000 damages for 200,000 bbls. of oil drained up to June 6, 1931; and from the four other defendants the sum of $248,000 for 440,000 bbls. of oil up to June 6.

Description of Properties

The Turman Oil Co. in the case against the Luling Oil Co. sets forth that it is the owner of a 32½-acre lease, a part of a 65-acre tract out of the E. G. Sevier Survey in Rusk County. The defendant owns a 10-acre lease, a part of the Robert E. Winn Survey, and adjoining the Turman lease. The Turman Oil Co. alleges that in March, 1931, the Luling Oil & Gas Co. drilled and completed No. 1 well on its lease, the well being located 102 feet from the plaintiff's south line and 175 feet from the plaintiff's east line, to a depth of 3,645 feet, and that the well had a potential production of several thousand barrels daily, and that during the month of May, 1931, the plaintiff drilled and completed a well, located 150 feet from its south and east lines to a depth of approximately 3,646 feet having a potential production of several thousand barrels daily, and that the defendant has drilled No. 2 well on its lease and the plaintiff is drilling Nos. 2 and 3 on its property.

In the case against the Linn-Tayloe Oil Co. and others, the plaintiff claims it owns the lease on the Deason tract of 50 acres in the Joiner Pool on which there are six producing wells with a potential production of approximately 7,000 bbls. daily; that the Linn-Tayloe Oil Co. owns a 40-acre west offset lease containing two wells with a potential production in excess of 6,000 bbls. a day; that the Bill & Dave Oil Corp. has a 10-acre west offset lease containing two producing wells with a potential production of approximately 6,000 bbls. per day; that the Bill & Dave Oil Corp. owns a 10-acre lease adjoining the Turman company's lease on the west and that there are two oil wells on it with a potential production of approximately 6,000 bbls. per day; that the Lide-Rowe Oil Co., Inc., has a 30-acre tract on which there are two producing wells with a potential production of approximately 6,000 bbls. a day. The plaintiff claims the various defendants' properties described are being operated as a unit, producing 11,000 bbls. a day.

The Turman Oil Co. then sets forth in each of the two suits that plaintiff and defendants' leases are located over a common pool or reservoir of oil and gas, one in the Kilgore area and the other in the Joiner area, both being a part of the large producing area known as the East Texas Pool.

Physical Characteristics

Plaintiff then describes the physical characteristics of the oil sand in the East Texas area, using practically the same language in the general description in each case, and differing only in so far

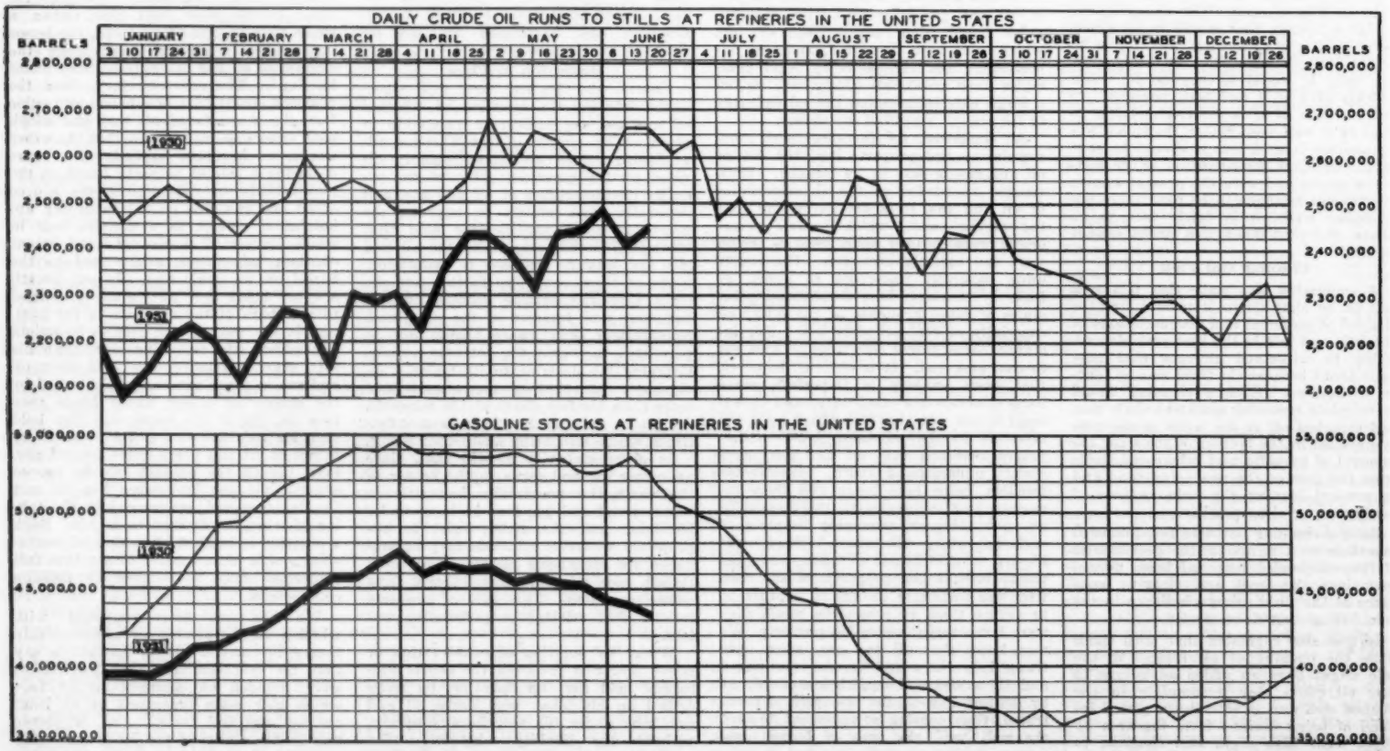
(Continued on Page 32)

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

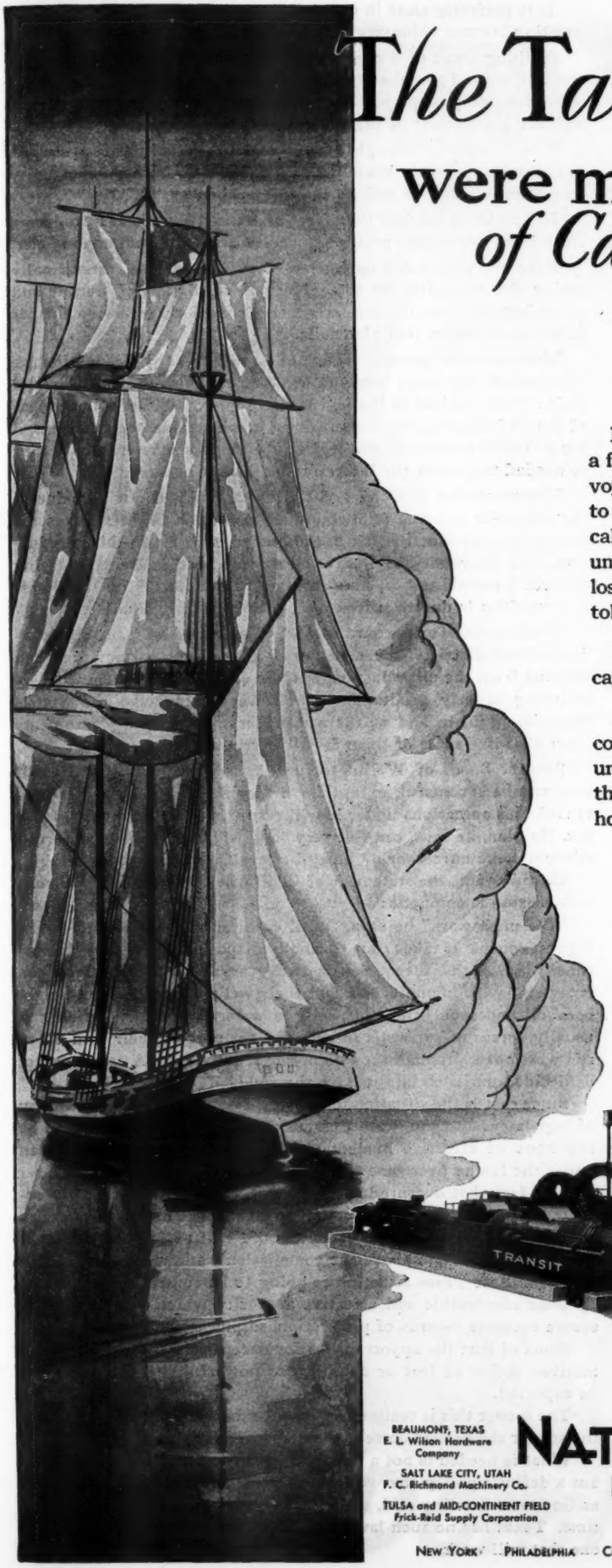
The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending June 20:

	Week ending June 20, 1931				Week ending June 13, 1931				Week ending June 25, 1930			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	502,100	7,655,000	9,238,000	100.0	498,400	7,832,000	9,189,000	100.0	504,100	8,196,000	8,774,000
Appalachian	91.8	89,900	1,521,000	1,219,000	91.8	93,600	1,538,000	1,223,000	91.0	79,000	1,682,000	757,000
Indiana, Illinois, Kentucky	96.6	324,600	6,276,000	3,693,000	96.6	340,400	6,343,000	3,701,000	99.6	326,430	8,190,000	4,067,000
Oklahoma, Kansas, Missouri	89.6	264,700	3,486,000	4,581,000	89.6	269,000	3,570,000	4,502,000	89.9	286,700	4,794,000	4,725,000
Texas	91.3	534,400	7,862,000	10,202,000	91.3	566,000	7,698,000	10,409,000	90.4	605,100	7,346,000	11,034,000
Louisiana and Arkansas	98.9	181,400	1,834,000	2,439,000	98.9	180,300	1,943,000	2,374,000	96.8	177,430	2,432,000	2,082,000
Rocky Mountain	89.3	60,600	1,878,000	860,000	89.3	60,400	1,873,000	857,000	93.6	67,550	2,713,000	1,174,000
California	96.5	476,400	11,470,000	98,019,000	96.5	453,600	12,613,000	98,142,000	99.3	576,710	15,112,000	106,702,000
Total United States	94.7	2,434,100	41,982,000	130,251,000	94.7	2,461,700	43,410,000	130,398,000	95.7	2,621,100	50,465,000	139,315,000
Texas Gulf Coast	99.8	395,600	6,637,000	7,225,000	99.8	429,100	6,515,000	7,350,000	100.0	453,100	5,807,000	7,501,000
Louisiana Gulf Coast	100.0	121,900	1,704,000	1,522,000	100.0	120,600	1,795,000	1,468,000	100.0	123,100	2,037,000	1,226,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



Data for 1931 based on weekly reports of the American Petroleum Institute. Figures for last week not shown in graph but are included in above tables.



The Tallest Ships were mere playthings of Calm and Storm

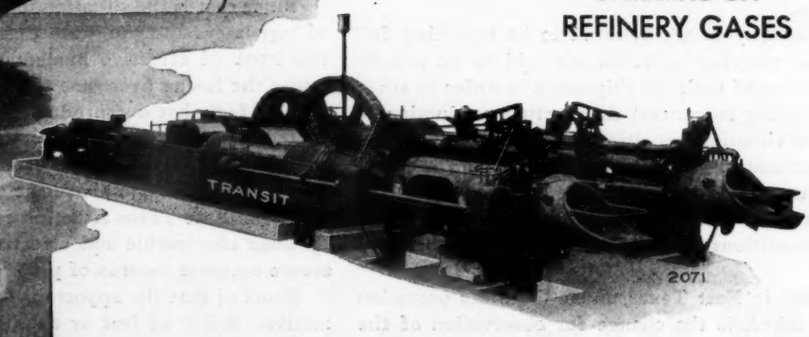
In those days when commerce must wait for a favorable wind, which, so often failed with the voyage half over and left the heavily laden ship to idle for days and sometimes weeks, in a dead calm— trade must sit and twiddle its thumbs until the argosy made port. Time and money losses due to delay were accepted in patient tolerance.

But we are living today in an age that MUST carry on— MUST produce despite all obstacles.

Pumping machinery must be so designed and constructed as to meet Calm and Storm with unswerving constancy. This is especially true for that most particular of all services— pumping hot oil.

Investigate this--

TRANSIT
Gas Engine Driven
HOT OIL PUMP
OPERATING ON
REFINERY GASES



BEAUMONT, TEXAS
E. L. Wilson Hardware Company

SALT LAKE CITY, UTAH
F. C. Richmond Machinery Co.

TULSA and MID-CONTINENT FIELD
Frick-Reid Supply Corporation

NATIONAL TRANSIT PUMP & MACHINE CO.
OIL CITY, PA.

PHOENIX, ARIZ.
Pratt-Gilbert Co.

LOS ANGELES
Republic Supply Company of California

ST. LOUIS, MO.
Reeves & Skinner Machinery Co.

NEW YORK · PHILADELPHIA · CLEVELAND · PITTSBURGH · LOS ANGELES · HOUSTON · TULSA · NEW ORLEANS

The OIL and GAS JOURNAL

PRODUCING REFINING PIPELINE ENGINEERING MARKETING

Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle.

President - - - - - - - - - - - - P. C. Lauinger
General Manager - - - - - - - - - John M. Egan
Editor - - - - - - - - - - - - - James McIntyre
Managing Editor - - - - - - - - Andrew M. Rowley
Refinery Editor - - - - - - - - - - C. O. Willson
Technical Editor - - - - - Charles K. Francis, Ph.D.
Petroleum Engineering Editor - - - - L. G. E. Bignell
Associate Editor - - - - - - - - - W. T. Anderson
Associate Editor - - - - - - - - W. T. Ziegenhain
Associate Editor - - - - - - - - - Thomas F. Smiley
Advertising Manager - - - - - - - - E. Klappenbach
Circulation Manager - - - - - - - - Simon H. Rourke

DISTRICT ADVERTISING OFFICES
C. L. CAIN - - - - 101 Park Ave., NEW YORK CITY
L. AUSTIN DE VORE - - - - - - - - - - - - - - - - - - 6 North Michigan Ave., Room 1414, CHICAGO, ILL.
LOUIS D. WEST, 1105 Leader Bldg., CLEVELAND, OHIO
R. P. (SALTY) CLARK - - - - - - - - - - - - - - - - - - 300 Pacific Mutual Bldg., LOS ANGELES, CALIF.
C. R. FARMER - 1516 Second National Bank Bldg., HOUSTON, TEX.

TERMS OF SUBSCRIPTION
(By Mail, Postage Prepaid)

Single copies - - - - - - - - - $ .15
Three months - - - - - - - - - $1.00
Six months - - - - - - - - - - $2.00
One year (in United States) - - - $6.00
One year (in Canada) - - - - - $7.00
One year (foreign countries) - - - $7.00

ADVERTISING RATES ON APPLICATION
Telephone: 2-6291
Remittances by Checks, Drafts, Express or Postal Money Orders should be made payable to
The Petroleum Publishing Company
Cable address, "Oilgasnal"

MEMBER AUDIT BUREAU OF CIRCULATIONS

PRODUCTION REPORTED TOO LOW

The damage which East Texas is doing to the industry has been underestimated rather than overstated.

The estimated production reported from that section falls far short of the actual production, perhaps by as much as 100,000 or 150,000 barrels daily.

There has been no practical adequate means of learning the actual production, the area being so vast, the operations so scattered, and with so much motive and opportunity for not reporting actual production.

Fear of being brought to task for violating the regulations laid down by the Oil and Gas Division of the State Railroad Commission would, in itself, be a powerful inducement for minimizing production reports.

It is, in fact, believed that comparatively few producers are giving correct information about their output, most small producers and even some larger ones reporting small production and run figures but in reality secretly running and "bootlegging" at night much greater quantities.

Few of the important buyers are believed to be reporting full purchases and some oil carrying railroads are said to be greatly under-reporting the volume of tank car shipments in order to cover up producers who are trying to conceal their actual production to avoid possible proration violation penalties.

These are serious accusations commonly reported and credited and so far as they are true they strengthen the argument for some form of regulation that will be adequate and dependable in place of the present chaotic conditions that make the production reported merely a guess.

If this is the situation in East Texas under the State proration order what, it may be asked, is the chance for observation of the 300-barrel agreement depending upon only voluntary co-operation?

The answer is supplied by the appeal of its sponsors to the State Commission to issue an emergency order supporting this agreement with the sanction of law.

But if the State Commission's original order was so flagrantly flouted what reason is there to hope that an emergency order behind this new plan would be better? It was admitted at the Austin hearing that there were already a dozen violators of the agreement.

It is perfectly clear in view of these revelations that neither the existing law nor voluntary agreement will control the situation.

Nothing short of a revision of the law which will put teeth in the statutes and give the State Commission power to act, with proper provision for prompt judicial determination of legal obstructions, will bring order out of the chaos that now prevails.

The governor, thoroughly familiar with the industry's situation, has been scrupulously anxious to give East Texas every opportunity to realize its position and do the right thing.

His patience has had the effect of letting East Texas producers learn from experience what they refused to hear from anyone else.

Even the most rabid opponents of proration there, after finally seeing the necessity for some form of regulation of output and accepting the Cranfill plan, are now prepared to go a step farther if, as seems likely, that plan fails.

Meanwhile the general effects of East Texas overproduction are being more and more brought home to the people of Texas and their representatives in the legislature, so much so that independent of the oil industry's view, there is an unmistakable popular demand for a special session of the legislature to pass whatever laws may be needed to protect the interests of the state at large.

Representative McCombs of Dallas has pointed out that due to the reduction in value following overproduction in East Texas the state's gross production tax is threatened with a two-thirds reduction. The University of Texas endowment fund is, he says, losing $200,000 a month and revenue from ad valorem taxes on leaseholds and royalties is due to suffer from shrinkages in valuations.

"Perhaps 50 Texas counties and three times as many independent school districts," he says, "draw the greater part of their tax revenue from the oil industry. It is no exaggeration to say that by restoring orderly production of oil we would solve the State's financial problem and at the same time many local governments from distress—some of them from bankruptcy."

Senator Small of Wellington frankly doubts that the Cranfill plan can be successful, except for a very short period, and is convinced that operations under it will result in great waste of oil and gas. No plan, he says, can last very long which can not be enforced without some unreasonable delay by legal proceedings.

On this point the statement of Chairman Terrell of the Railroad Commission is emphatic:

"We must wait," he says, "until cases are finally settled in the highest courts. It takes time to finally dispose of these cases; sometimes six months, often one or two years; so operators who can bring suit with impunity can run their wells wide open, get neighbors' oil and soon bring the wells to water and ruin the field. It usually forces offset wells in order to get part of their own oil to run wide open although they do not desire to do so. A case may not be decided until too late to save the field."

Since that is the situation under the present law on the testimony of legislators and the State Commission there does not seem to be any hope of effective immediate action until the legislature can revise the law to overcome these disadvantages.

The fact that overproduction is vastly larger than actually reported robs any reported reduction of importance because even with such a reduction the actual output would still be far above what it is reported to be and above the commission's allowable.

If the East Texas situation is going to be controlled it must be by some responsible and effective authority which will be able to secure accurate records of production, shipments and runs.

Short of that the opportunities for deception are so free and the motives, either of fear or cupidity, so powerful that no relief can be expected.

The sooner this is realized by East Texas and by Texas generally the sooner the needed corrective will be applied.

What is needed is not a temporary plan to serve for the moment but a definite policy that will be effective as conditions change, or as Governor Sterling said, a law that will settle the question for all time. Texas has no such law now; hence the necessity for enacting one that will work.

The Pictures of America's Gas Lines show DRESSER COUPLINGS in almost every one

As the vast panorama of over 100,000 miles of Dresser Coupled lines is unrolled, you witness that every joint is absolutely and permanently tight—yesterday, today, and tomorrow!

S. R. DRESSER MANUFACTURING COMPANY
BRADFORD PENNSYLVANIA

DRESSER COUPLINGS Dominate!

Explain Various Clay Recovery Methods

Contact Clays Require More Complex Treatment With Displacing Solvents Generally Favored. Special Burning Methods Used

By E. W. Zublin
Texas Pacific Coal & Oil Co.

Recovery of clays used for treating oils plays an important part in the economy of refinery operation. Attempts to recover spent clays were made early. Coarse clays, such as are used for percolation or vapor phase treating, presented but few difficulties. These were soon overcome and revivifying such clays by burning as often as 40 times before final discarding is regular plant practice today in many places. Recovery of fine clays, however, has not yet reached a state of satisfactory solution, although on laboratory scale such recovery has been carried out successfully. A number of difficulties, including removal of oil and naphtha, excessive loss of fines, clogging of filters on steaming, etc., have so far prevented its application on large scale operation. The usual procedure of clay recovery which includes burning in a multiple hearth furnace is not well suited for contact clays, therefore attempts have been made to devise other methods.

Drying and Cleaning

One may say that clay recovery by any method consists of two different groups of operations, each of which may include one or several steps. These groups are:

1. Removal of all excess oil, naphtha, solvent, etc., which may be called the drying operation.
2. Removal of the adsorbed matter, which may be called surface cleaning operation.

The removal of excess oil is not only a matter of saving and recovering considerable quantities of marketable hydrocarbons, but it also is a necessity because it paves the way for the subsequent attack on the adsorbed matter. As long as any appreciable amount of oil is present the adsorbed matter is protected; and if burning is attempted, temperature control is out of question. Previous to the advent of contact clays no difficulties were experienced in this preparatory operation. The fineness of contact clays and their acid condition, however, have called for special methods.

The methods devised to overcome the difficulties are numerous and several patents have been granted to investigators. G. F. Olsen, United States Patent 1,720,144 and 1,745,837 recovers entrained heavy lubricating oil from a filter cake of finely divided solid material by displacing the former with gas oil or light spindle oil rather than naphtha. Better efficiency and absence of channeling is claimed. W. M. Stratford, United States Patent 1,724,531 flushes the filter cake with a hot solvent such as naphtha or kerosene, if necessary under pressure in order to maintain the liquid state. H. H. Cannon, United States Patent 1,710,343, avoids channeling of the liquid used for washing by adding to it a pulverized inert material, which fills up any cracks that may form due to shrinkage of the cake during the extraction; equal distribution and even washing is insured. R. A. Dunham, United States Patent 1,694,971 "de-oils" spent clays by treating with an optimum amount of water; the quantity must be determined experimentally from batch to batch. H. Lowry, United States Patent 1,763,167 employs an alkaline solution such as sodium carbonate or sodium hydroxide at temperatures close to its boiling point for displacing oil.

Several of the above mentioned reagents do really more than only remove entrained oil. Their actions will be discussed later.

The actual revivification of the clay takes place in the second group of operations classified here as "removal of adsorbed matter."

Adsorbed Matter

Adsorbed matter may be defined as matter which has come sufficiently close to a solid surface so as to be within the reach of the forces of surface attraction. These forces are of dual nature. They are composed of the force of mass attraction (gravitational force) and forces

E. W. Zublin, chief chemist of the Texas Pacific Coal & Oil Co., Fort Worth, Tex. Mr. Zublin is one of the best known chemists of the refining industry. An article on "Routine Testing of Contact Clays" appeared in the April 23, page 56, issue of The Oil and Gas Journal. Additional articles will appear in later issues.

involving electrical phenomena. Adsorption phenomena are accordingly divided into two groups known as nonpolar and polar adsorption, depending upon the predominance of the one or other of the two types of forces. Polar adsorption involving electrical forces is believed to be connected with the chemical relationship of the adsorbing medium and the adsorbed matter. The polar force of adsorption varies a great deal with the relative chemical composition of both adsorbing and adsorbed matter; while the nonpolar force chiefly depends upon the size of the molecules to be adsorbed.

Both types of forces are inversely proportional to the square of the distance of the mass centers. This explains at once why layers of adsorbed material are removed with greater difficulty as the solid surface is approached. Solvent action will remove all the layers down to a distance from the solid surface at which the dissolving tension is equal to the force of adsorption. Beyond this distance solvent action alone is not capable of tearing away further layers. This condition is changed, however, if a solvent is chosen which itself has considerable surface affinity to the adsorbing medium. A partial displacement will take place, the degree of which depends on the relative surface affinity of the two substances trying to reach the surface. In as much as the solvent action of the solvent causes the originally adsorbed matter to be carried away gradually, an almost complete displacement may be expected under favorable circumstances by the use of displacing solvent.

Heats of Wetting

It is evident that the forces of attraction must be known quantitatively in order to find the proper solvents for the revivification of clays. Gurwitsch studied the problem extensively, using the heats of wetting as a comparative measure (Kolloid Zeitschrift 38, p. 242, 1926). He assumed that the number of heat units developed per weight unit of adsorbent in the presence of a large excess of the solvent is proportional to the forces of adsorption. This is the case as long as no chemical reaction of the solvent or one between the solvent and the clay takes place. Recent investigations by Bosshart and Wilde (Chem. & Met., Dec., 1930, p. 760) corroborate this theory. Gurwitsch found the following heats of wetting:

HEATS OF WETTING, USING EXCESS OF SOLVENT (IN CALORIES PER GRAM OF SOLID)

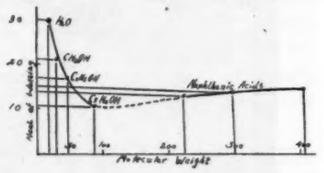
	Florida clay	German clay*	Animal charcoal
Amylene	57.1	78.8	....
Water	30.1	....	18.5
Cychlohexene	28.1	....	....
Acetone	27.3	....	19.3
Pinene	....	20 6	17 2
Methylalcohol	21 8	27.6	17 6
Ethyl acetate	18 5	....	16.5
Ethyf alcohol	17.3	24.5	16.5
Aniline	13.4	....	....
Amyl alcohol	10 9	20.4	10.6
Ethyl ether	10.5	....	....
Chloroform	8 4	15.7	14 0
Benzene	5 6	10 8	11.1
Carbon tetrachloride	4.6	9 9	8 4
Carbon bisulphide	4 2	9.4	13 9
Hexamethey lene	4.2	....	9.3
Hexane	3.9	7.2	8.9
Naphtha 430-450°F.	5.3	....	13 4
Naphtha 300-320°F.	4.5	....	11 3
Naphtha 180-200	4.2	....	9.5
Naphthenic acids:			
Average molecular weight 405	14.2	....	....
Average molecular weight 298	13.5	....	....
Average molecular weight 221	12.8	....	....

*Probably acid treated bentonite.

A study of the foregoing table reveals a number of interesting points. On looking over the heats of wetting with Florida clay, one finds that two of the groups of compounds yield the highest figures. They are: Unsaturated compounds and compounds with a hydroxyl radical. Unsaturated compounds show a high heat of wetting due to polymerization that takes place when the molecules are brought together closely along the surface—a phenomenon entirely due to mass action; while the hydroxyl radical imparts to the compounds the property that causes polar adsorption. When asymmetrical polar molecules such as ethyl alcohol are adsorbed, the molecules orientate themselves, the part of the molecule whose constitution is most closely related to the adsorbing surface being turned towards the surface. Clays are hydrated silicates. They contain free OH groups and therefore are chemical relatives of all compounds carrying hydroxyl radicals. The polar attraction is the greater, the smaller the balance of the molecules is. Thus water having a hydrogen molecule only besides the hydroxyl, stands at the top of the list; methyl alcohol is next, followed by ethyl and the heavier alcohols. Acetone has the higher heat of wetting than methyl alcohol in spite of the fact that it has the larger organic radical than the latter. Acetone exists in two isomer forms: The keto form $(CH_3)_2C{=}O$; and the enol form $CH_2{=}C(OH)CH_3$. Though normally the keto form is the preferred one, under outside influence acetone may assume the enol form. As can be seen from the formula, enol-acetone is an unsaturated alcohol, subject to polar adsorption and liable to be polymerized. Thus the heat of wetting of acetone on a siliceous surface is due to a mixture of chemical reaction and polar adsorption. Similar is the case of ethyl acetate that probably under the influence of both mass action and catalysis of hydrogen ions on the clay surface begins to hydrolyse, developing a small quantity of ethyl alcohol and acetic acid, both of which are subject to polar adsorption.

Mass Attraction

While the heat of adsorption of polar compounds with one hydroxyl radical decreases as the size of the molecule increases just the reverse is the case for nonpolar compounds. As previously pointed out, the nonpolar adsorption is a function of the mass attraction. Mass attraction is directly proportional to the masses involved. The larger the molecule is the greater is the gravitational force and in consequence, the heat of wetting. From this one may conclude that if the heats of wetting of a chemical series such as monoalcohols are plotted against increasing molecular weight, a minimum is reached followed by a slow increase. Gurwitsch's figures yield the following curve:



The conclusions that can be drawn from these considerations are far reaching. For displacing adsorbed matter, highly polar compounds of low molecular weight or nonpolar compounds of high molecular weight should be used. For removing coloring matter from oils the absence of highly polar substances of low molecular weight is essential and decolorization is more effective in a solution of hydrocarbons of low molecular weight as compared with one of high molecular weight. This last conclusion indicates that heavy oils are more difficult to decolorize than lighter ones under otherwise identical conditions.

Solvents

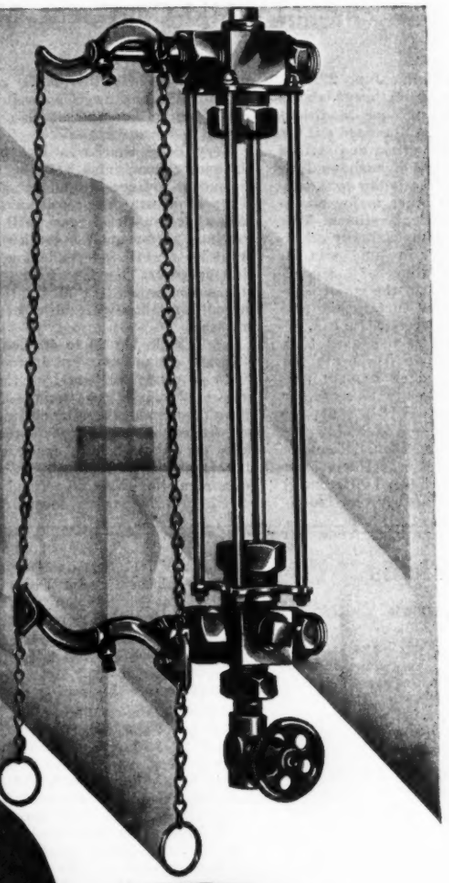
Gurwitsch suggested a mixture of methyl or ethyl alcohol and benzol for revivification of clays, the benzol acting as a solvent and carrier for the displaced tarry matter. After removal of solvent the clay is preferably steamed or blown with air at about 300° F. to remove the adsorbed alcohol. By wetting spent clay with naphtha and alcohol and then extracting in a Soxhlet extractor with benzene, Gurwitsch recovered 99.5 per cent of the adsorbed resins. The same clay was used over and re-extracted 30 times without appreciable loss in weight or efficiency.

Recognition that compounds containing hydroxyl groups are well suited for revivification of spent clays caused other investigators to further search the field. F. W. Hall, United States Patent 1,709,264 suggests gasoline containing a small amount of one of the lower alcohols. F. A. Bent in United States Patent 1,770,166, covers the use of poly-alcohols and their esters and ethers for clay recovery. Particular attention is paid to cellosolve (ethylene glycol mono ethyl ether), because it is capable of acting as a solvent as well as a displacing agent. Triethanolamine, having three hydroxyl groups should make an excellent displacing solvent. Its use for the purpose un-

(Continued on Page 77)

PENBERTHY PRODUCTS

WHERE SERVICE IS SEVERE USE THE PENBERTHY NAVY TYPE GAGE

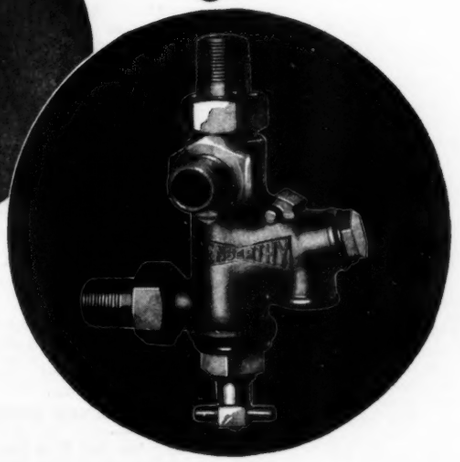


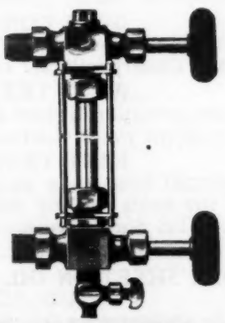
THE Penberthy Navy Type Gage is of extra heavy construction throughout. Its dependable operation results from its exceptionally rugged design, careful workmanship and the fact that it is made from new metal. These are important reasons why this gage is so generally preferred in the refinery, the natural gasoline plant . . . in fact, wherever conditions are severe.

These characteristics are not peculiar to the Penberthy Navy Type Gage . . . they apply equally to Penberthy injectors, lubricating devices and other types of Penberthy gages. Penberthy Products are carried in stock by supply houses everywhere.

PENBERTHY INJECTOR COMPANY

Established in 1886 DETROIT Canadian Plant Windsor, Ont.





"SURE-DROP"

"SENTRY"

"SATURN"

"SCREW TOP"

"SILEX"

"SAMSON"

Encouraging Crude Price Revisions

California High Grade Oils Given Substantial Increases.
In Mid-Continent Magnolia Adopts Flat Price Scale

By L. P. Stockman

LOS ANGELES, Calif., June 22.—As a result of effective curtailment and a concerted attempt to stabilize conditions on the Pacific Coast the Standard Oil Co. of California increased crude and refined oil prices at the opening of business June 19 and this constructive policy was subsequently adopted by other major operators and most independent refiners. This readjustment, which was originally scheduled to be made earlier in June, was delayed because of the failure of independent producers and some of the major companies to meet the new curtailment program which became effective June 1.

The Standard Oil Co. increased tank wagon prices of gasoline 5½ cents per gallon, the result of which brought prevailing tank wagon prices to 13 cents per gallon in Los Angeles and 13½ cents per gallon in San Francisco, including the state tax of 3 cents per gallon. Resellers of gasoline made by major refiners have been operating on a 3-cent differential and will continue to do so for an indefinite period. On this basis gasoline is retailing in Los Angeles territory for 16 cents per gallon and at San Francisco for 16½ cents, tax paid.

Very little time was lost by any of the major companies and the larger independent refiners in adopting the new setup of prices. The retail market is still somewhat unsettled and will probably continue so for another week or 10 days or at least until independent service station operators dispose of current stocks of gasoline secured at substantially lower prices than those prevailing at the present time.

Crude Up 20 to 40 Cents

Crude oil prices were increased from 20 to 40 cents per barrel on the average grades of oil in the various fields, although no change was made in the heavier grades of crude which escaped all three of the reductions made on March 10, March 15 and March 30. This readjustment in crude and refined oil prices brought to a climax the most drastic gasoline price war both from the price reductions effected and the duration of the competitive struggle for gallonage which has visited the Pacific Coast in many years. Last year retail gasoline prices, including the 3-cent state tax, dropped at several points to as low as 9 cents per gallon, whereas this year gasoline has been retailing at many points along the Pacific Coast for several weeks as low as 8½ cents and in one or two places for as low as 5 cents per gallon, tax paid.

The readjustment in crude and refined oil prices is naturally welcomed by both producers and refiners, but it is significant to note that several of the major companies in restoring prices cautioned independent producers and resellers of gasoline that existing prices can only be maintained as long as effective curtailment continues and constructive policies maintained with respect to the sale of gasoline.

In a public statement the Standard Oil Co. declares that "if further disaster is to be avoided prices of crude oil and gasoline must be maintained at new and higher levels but this is possible only if the producer who remains on the outside of the curtailment plan for his own individual profit, taking the benefits of curtailment but assuming none of the burdens, joins with the majority of the industry to save the whole industry from disaster and if the few refiners who insist upon dumping unneeded gasoline into the market refrain from doing so and if the dealer in gasoline ceases price cutting and if the public itself takes a stand against the price cutter thus making the practice profitless."

"Give a thought," says the Standard's announcement, "to what the price cutter means in your own business, Mr. Reader."

Both the Standard and Union in posting new crude oil prices specifically state that the new crude oil price schedules apply only to crude oil produced in ac-

(Continued on Page 105)

Late Fields

EAST TEXAS

FORT WORTH, Tex., June 23.—Texas Pipe Line Co. is connecting to more leases in the East Texas district, having connected with over 10 on June 22. It is reported to be paying 12½ cents per barrel for this oil.

N. Y.-PA. GAS FIELD

CORNING, N. Y., June 22.—Late completions, and near completions, heard from after the close of the regular report on the New York-Pennsylvania gas field were as follows:

The Belmont Quadrangle Drilling Co.'s No. 1 Hallock, in the Dundee-Wayne Field, 2,000,000 feet of gas.

Pentoga Gas Co. and DeGolier's No. 1 Ernest, 1 mile north of Wayne, N. Y., flowing 400,000 feet but not completed.

Bigelow Gas Corp.'s well on the Bigelow farm, Wayne, N. Y., 7,500,000 feet at 6 feet in the Oriskany sand.

Tri State Gas Co.'s No. 1 Daboll, in the Wayne Field, drilling in Oriskany sand and showing for 3,000,000-foot well.

Tri State Gas Co.'s No. 1 Methodist Church, in the Wayne Field, ready for completion.

The wildcat test between Hector and Valois, across Seneca Lake from the Dundee Field, was given two shots of nitroglycerin, without helping the well much, if any. It is showing about 50,000 feet of gas a day. The well is owned by the Hector Gas & Oil Co., which owns 2,000 acres of leases on the east side of the lake.

In the deep sand Pennsylvania gas area in Tioga County, a number of important tests were near completion. The Lycoming Natural Gas Co.'s No. 1 Place in Farmington Township was delayed in completion by leaky casing and the same company's No. 1 Price has pipe set preparatory to completion. Other wells are drilling close to the Oriskany sand horizon.

OKLAHOMA

The deepest test in Oklahoma was still drilling in the Pennsylvania series. Mid-Kansas Oil & Gas Co. and Ramsey Petroleum Co.'s No. 6 Preston-Culp, NW cor. NE, Section 6-5-9w, was drilling at 8,205 feet. The test is located on the west side of the Cement Pool, in Caddo County.

Magnolia Petroleum Co.'s No. 2 Estes, Keegan, SE cor. SW NE, Section 10-5-9w, on the east side of the Cement Pool, in Caddo County, was shut down at 5,193 feet with a showing of water.

In Garvin County the wildcat test of Malernee Oil Co., No. 1 Phillips, NE cor. SW, Section 24-2-2w, was drilling at 4,340 feet with nothing showing.

In the Oklahoma Panhandle, Western Production Co.'s No. 1 Gable, C NE, Section 23-4-13 (Cimmaron meridian), Texas County, was drilling at 2,400 feet, and it was due to reach the Colorado shale, where the gas is expected, by next week. It was the only active test in the Oklahoma Panhandle.

In the Kingston shallow area in Marshall County in the southern part of the State, Hearle-Hudson's No. 1 Williams, SW cor. SE NE, Section 24-7s-5, was drilling at 610 feet. The test is located about a mile northwest of production in the area.

Monarch Petroleum Co.'s No. 1 Gregg, SW cor., Section 36-3s-4w, Jefferson County, a wildcat test a mile west of the Healdton Field, was fishing for tools at a total depth of 3,700 feet.

Phillips Petroleum Co.'s No. 2 Highland, SW cor. NE, Section 10-11-3w, on the west side of the Oklahoma City Field, made 5,164 bbls. of oil in 3 hours and 15 minutes with an estimated 50,000,000 feet of gas a day. The total depth of the well was 6,463 feet in the Wilcox sand.

The Oklahoma Corporation Commission has postponed its hearing of June 29, indefinitely. The hearing was called to

(Continued on Page 121)

PIPE LINE AT FRENCH PORT

A new company has just been formed to build and operate an oil pipe line at La Pallice Harbor, France. The plant will be managed by the Compagnie Industrielle des Petroles. The company has been formed jointly by the Bedford Petroleum Co. (a Standard subsidiary), the Lille-Bonnieres-Colombes and the Raffineries du Midi.

SAFETY COUNCIL

HOUSTON, Tex., June 22.—The regular July meeting of the Gulf Coast Chapter of the Petroleum Safety Council will be held at noon, July 3, at the Texas State Hotel, Houston, according to an announcement of P. E. Keegan, secretary of the chapter. On the program will be a paper on "Gases and Vapors of the Petroleum Industry," prepared by Mr.

High Spots in Field News

ROCKY MOUNTAIN AREA

Deep test planned for Fort Morgan Dome, Colorado. Oil and gas showing in Mahoney Dome test, Wyoming.

CALIFORNIA

Curtailment effective in California although lack of co-operation by a few prevents success in several fields.

NORTH LOUISIANA-ARKANSAS

Four oil wells and two gas wells in Louisiana. New Mississippi test. Six scattered dry holes in three states.

SOUTHWEST TEXAS

New oil sand in Cartwright Pool. Pettus sand covers extensive area. Important developments in Reynosa zone.

KANSAS

New fields increase state's possible output to 200,000 bbls. Advisory committee begins work. New pipe line.

OKLAHOMA

State's production held to approximate level. Oklahoma City now has total of 796 completed wells. To continue stripper production.

GULF COAST

New dome found in Plaquemines Parish. Tremendous pressure in southern Victoria County wildcat. Dog Lake Dome abandonment.

WEST TEXAS

Yates and Hobbs proration figures continued. Schleicher County wildcat swabs two-thirds water. Increase in North Texas purchases.

EAST TEXAS

Increase of 472,200 bbls. daily in potential over previous two weeks. Total of 609 wells drilling with first reports for 83 tests. Completions rise to 105 during week. Lack of water for drilling.

SCORE SHEET ON OIL PRODUCTION

Below is shown the allotted average daily production in the United States from April 1 to October 1, 1931, suggested by the Oil States Advisory Committee, and the actual daily average production in the week ending June 20:

	Barrels			
	Allotted	Actual	Over	Under
Texas	714,000	991,626	277,626	.....
Oklahoma	550,000	557,145	7,145	.....
California	500,000	514,750	14,750	.....
New Mexico	40,000	44,290	4,290	.....
Louisiana	65,000	58,600	.....	6,400
Kansas	110,000	100,910	.....	9,090
Arkansas	50,000	44,870	.....	5,130
Rocky Mountain	60,000	54,080	.....	5,920
Eastern fields	110,000	110,000	.....	.....
Total	2,199,000	2,476,271	303,811	26,540

Total net daily average overproduction 277,271 bbls.

Yates and Hobbs Proration Continued

Two Small Producers in Ward County. Schleicher County Well Two-Thirds Water. Increased Purchases in North Texas and Panhandle

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 22.—At a meeting of the Yates Pool Advisory Committee at Dallas, the members voted to continue the proration allowable of 70,000 bbls. per day, but having the engineers in the field to make bottom hole pressure tests in gauging the wells instead of the one-hour gauges which have been used in the past. Total daily potential production remains more than 5,000,000 bbls., and the engineers' estimates are that the pool will produce more than 700,000,000 bbls. So far it has shown a decline of only 11.7 per cent since July, 1929. It has produced around 110,000,000 bbls. up to the present time.

The Hobbs Pool, New Mexico, advisory committee also met in Dallas, and voted to extend the proration program for six months from July 10. The allowable of 40,000 bbls. per day will be continued on a flexible basis. Wells in this field are gauged through tubing.

When the Magnolia Petroleum Co. posted prices in the various producing districts of Texas on June 20, the West Texas district was untouched, price of crude in Crane, Howard, Glasscock, Mitchell, Winkler, Upton and Pecos remaining at 25 cents per barrel.

Ward County Wells

White and others' No. 1 Owenby, in Section 11, Block 5, H.&T.C. Survey, in the Barker area, Ward County, between the Shipley and Bennett Pools, has been completed for a small producer enlarging the Barker or extension area between the former two pools. Total depth is 2,248 feet, and the well is flowing at the rate of 58 bbls. per day. Top of the first pay was logged at 2,171 feet. An increase was encountered from 2,187-90 feet and another was picked up from 2,218-30 feet.

The Texas Pacific Coal & Oil Co.'s No. 1 James, in Section 5, Block 34, same survey, has been drilled to 2,450 feet and recompleted for an initial production of 100 bbls. daily. It logged an increase in oil from 2,356-60 feet. This well is in the same area.

Big Lake Field

The Big Lake Oil Co. is killing its No. 2-C and 1-C University, both deep wells in the Big Lake Pool, Reagan County. This is being done to conserve gas, and the wells will be shut in indefinitely. However, No. 1-C will be deepened around 75 feet from 8,729 feet to reach the lower pay which produces 44 gravity, lower gravity oil, with less gas than is found in the first deep pay formation. Total depth of No. 2-C University is 8,603 feet.

Schleicher County Wildcat

Wessner and others' No. 1 Nicks, the wildcat in Schleicher County, which has been hloding the attention of operators in the West Texas district for two weeks, was swabbed down within 100 feet of the bottom on June 19, and was then shut down over night. Fluid rose 350 feet in the hole, and the entire 450 feet of fluid was swabbed out Saturday, June 20, showing only one-third oil, and the remaining two-thirds water. The test is now shut down. The deal which was pending in regard to part of the acreage surrounding the test, has not yet been consummated.

NORTH TEXAS

Deep Oil Development Co.'s No. 5-A Wilson, in Section 75, Block 75, A.T.&L. Survey, Archer County, a deep test for the county, which will be carried to 5,500 feet unless commercial production is found, had sand and a sandy shale at 2,218-41 feet, sand from 2,247-49 feet and from 2,285-2,300 feet, and was estimated good for 1,000 bbls. per day, on drill stem test. It is now drilling ahead below 2,325 feet.

The Texas Company, Magnolia Petroleum Co. and other purchasers may elect to increase their oil purchases in the North Central Texas district as they have recently done in the North Texas district, and if so marginal well allowances will be raised accordingly. At present the pipe line companies are taking 4 bbls. daily from wells producing from 2,000 feet or less; 8 bbls. from 2,000 to 2,300 feet, and 14 bbls. from 3,300 feet and over. An increase in runs from these producers will be a great boon to the operators in the district, who in the majority of instances are operating their wells at a loss.

Effective at 7 a.m., June 16 marginal wells in the North Texas district were increased to 10 and 20 bbls. daily, helping operators in that district to a great extent. Wells producing from 2,000 feet and less are allowed 10 bbls. and those producing from 2,000 to 3,500 feet are allowed 20 bbls. per day. The Waggoner Refining Co. and The Texas Company are taking the oil, the latter to fulfill contracts with local refineries in the Wichita Falls area.

PANHANDLE

The Panhandle district also was given encouragement during the past week when the Philtex Oil Co., a subsidiary of the Phillips Petroleum Co., which formerly was a purchaser of crude in the district but stopped its takings in December of last year, announced it would again enter the district as a purchaser and would take 5,000 bbls. per day, which will eventually be added to the allowable of the field. H. J. Corcoran, field umpire has been ordered by the advisory committee to make the necessary allocations for pipe line connections by the Philtex company.

Increasing pipe line takings, and increasing the allowables of the producing wells in the North and North Central Texas and Pahandle districts came as a most welcome boon to the producers in these districts, and may be regarded as the start of a gradual climb back to better days for the industry. These districts have borne the blunt of overproduction troubles, have been given the smallest allowables possible, and the prices in the district have been nothing but sacrificial, the operators not paying for their wells with the production in hundreds of cases, consequently bringing on the plugging of many of them, especially after the price of crude dropped in East Texas, bringing a consequent price cut in these districts.

Panhandle Allowable

H. J. Corcoran, umpire of the Panhandle district, has issued notice that in accordance with the special order of the railroad commission, the amount of oil to be produced daily by the operators and producers in the Panhandle district composing Carson, Gray, Hutchinson, Moore and Wheeler Counties, for the period 7 a.m., June 16, to 7 a.m., July 1, 1931, shall be the allowable production as set forth in this proration schedule.

SUMMARY

County—	Wells	Potential	Allowable
Carson	236	11,575	4,023
Gray	748	91,732	32,178
Hutchinson	833	28,313	10,428
Moore	20	2,903	1,086
Wheeler	43	673	264
Total	1,880	135,196	47,979

Total potential production 135,196
Total outlet 47,979

COMPLETIONS IN RANGER DISTRICT

Erath County

Payne and others' No. 1 Martin, dry and abandoned, total depth 2,935 feet.

Palo Pinto County

Burton and McKee Oil Co.'s No. 1 Allen, total depth 3,022 feet, plugged back to 3,004 feet, shot 20 quarts 2,990-3,003 feet, shot 80 quarts 2,953-73 feet, initial production 7,100,000 feet of gas.

Stephens County

Urban and others' No. 2 Riddle, gas sand 1,950-62 feet, gas sand 1,984-2,004 feet, initial production 1,300,000 feet of gas, total depth 2,018 feet. This well

(Continued on Page 105)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending June 22

CARSON COUNTY

Company, well, farm name, section and block—	Remarks:
Deep Lake Oil Co.'s No. 1 Keys, NE cor. SW, Sec. 1, Blk. 4, I.&G.N. Sur.	S.G. 2,230 ft; drlg. 2,537 ft; 13,000,000 ft. gas.
El Paso-Amarillo O. & G. Co.'s No. 1 Chapman, 594 ft. S, 1,468 ft. E, Sec. 7, Blk. 3, A.B.&M. Sur.	Rig.
Interstate Prod. Co.'s No. 1 Selber, C NW, Sec. 10, Blk. 7, H.&G.N. Sur.	Drlg. 1,630 ft.
Red River Gas Co.'s No. 1-A Bennett, 660 ft. N, 660 ft. W, NW, Sec. 2, B.&B. Sur.	Drlg. 2,252 ft.
The Texas Co.'s No. 1 Crutchfield, 1,320 ft. S, 1,331 ft. E, Sec. 29, Blk. 4, I.&G.N. Sur.	Material.

CHILDRESS COUNTY

C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft.

COLLINGSWORTH COUNTY

Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur.	Drlg. 2,507 ft; top pay 2,498 ft; 300 ft. oil in hole; to run 5-in. csg.

COTTLE COUNTY

Darby Oil Co. and Merry Bros. & Perrin's No. 1 Richards, 330 ft. NE, Sec. 13, B.S.&F. Sur.	Drlg. 4,608 ft.

GRAY COUNTY

Anderson et al's No. 2 Vollmert, 330 ft. N and W, SW, Sec. 140, Blk. 3, I.&G.N. Sur.	Rig.
Boyles et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur.	Spudded and S.D.
Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur.	S.D. 980 ft; trying to pull 8-in. csg.
Cree Hoover & Traham's No. 1 Delmar, 330 ft. S line, 330 ft. W line, NW, Sec. 105, Blk. 3, I.&G.N. Sur.	T.D. 3,264 ft; T.P. 3,235-55 ft; C. O. after 45-qt. shot.
Danciger O. & R. Co.'s No. 1 Barrett, NW cor. S½ NE, Sec. 128, Blk. 3, I.&G.N. Sur.	T.D. 3,365 ft; plugged back 3,335 ft; top pay 3,175 ft; swbd. 60 bbls.; to shoot.
Danciger O. & R. Co.'s No. 1-B Barrett, SW cor. N½ NE, Sec. 128, Blk. 3, I.&G.N. Sur.	T.D. 3,280 ft; top pay 3,221 ft; swbng. 7 bbls. per hr.
Danciger O. & R. Co.'s No. 1 Barnett, 231 ft. S, 330 ft. W, E½ of N 56 ac., Sec. 136, Blk. 3, I.&G.N. Sur.	5,000,000 ft. gas 3,097 ft; S.D. 3,097 ft.
Parton Holt and Shell Pet. Corp.'s No. 1 Morse, 330 ft. S and E, Sec. 6, Blk. 26, H.&G.N. Sur.	Location.

(Continued on Page 111)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended June 22

ANDREWS COUNTY

Company, well, farm name, section and block—	Remarks—
Deep Rock Oil Co. et al's No. 1 Kuykendall, 2,310 ft. from N and E of SW cor. Sec. 24, School Blk. A-46.	Shut down; total depth 4,648 ft.; plugged back to 4,565 ft.

BREWSTER COUNTY

Brewster Oil Co.'s No. 1 fee, 2,640 ft. S a[illegible], 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S. F. Sur.	Shut down 2,820 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 miles south of Alpine	Shut down 1,750 ft.

CONCHO COUNTY

Beesley et al's No. 1 Waring Estate, 400 ft. from N and E Sec. 163, T.&N.O. Sur.	Shut down 267 ft.
Betts & Dennis' No. 1 H. E. Woods, 710 ft. from E and 150 ft. from S Sec. 3, H.E.&W.T. Sur.	Shut down 80 ft.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Shut down 1,850 ft.

CRANE COUNTY

Cranfill Bros. and Gulf's No. 1 J. B. Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land	Total depth 5,336 ft.; shot with 100 qts. from 4,319-4,279 ft.; made 100 bbls. after shot and was shut in.
E. H. Sides et al's No. 1 B. P. Nolen, 150 ft. from S and 150 ft. from W of N 160 acres, Sec. 8, Blk. 31, H.&T.C. Sur.	Drlg. 1,710 ft.

CROCKETT COUNTY

Doleman & Moore's No. 1 Perner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.	Spudded and shut down.

CULBERSON COUNTY

Kornrumpf et al's No. 1 Garren, 330 ft. S and W Sec. 15, Blk. 79, Public School Land	Shut down 1,280 ft.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW Sec. 46, Blk. M, E.L.&R.R. Sur.	Spudded 20 ft. and shut down.

ECTOR COUNTY

H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW Sec. 16, Blk. 46, Twp. 3s, G.M. M.Br.&A. Sur.	Shut down 3,275 ft.

(Continued on Page 110)

Dozen New Wells Per Day in East Texas

Potential Production Rated at Over 2,000,000 Bbls. With New Wells Adding to It. Five Hundred Drilling Wells

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 22.—While different factions, backed by major companies and independents alike, are trying to formulate plans to curtail production in the East Texas district, the district gains in daily potential, figures released for the current proration period from June 16 to July 1 showing an increase of 472,209 bbls. daily over the previous two-week period. On June 16 there were 888 producers completed in the three areas, representing Upshur, Gregg, Smith and Rusk Counties, the wells having a daily potential of 2,026,531 bbls. On June 1 there were 720 wells, showing an increase of 168 producers in two weeks' time, or an average completion of 84 per week.

Daily potential of the Kilgore area is 908,784 bbls. from 384 wells, 772,403 bbls. from 358 wells in the Joiner area, and in the Lathrop or Longview area 345,344 bbls. from 146 wells.

There is a total of 169 drilling wells in the Joiner area, with 31 first reports this week and 27 completions. In the Lathrop area there is a total of 137 drilling wells, 19 first reports and 23 completions. In the Kilgore area there is a total of 191 drilling wells, 30 first reports and 50 completions. Upshur County is the scene of 29 drilling tests at the present time, with one location reported for the week. Six wildcats are drilling in Rusk County and 12 are drilling in Smith County. There is a total of 609 drilling tests in the entire East Texas district, with first reports dropping from 106 last week to 83 this week, showing some probable result of the drop in price of crude in the district, and probably also affected by the new curtailment plan which was adopted by the majority of producers, and which was put into action June 20. Completions gained this week, however, taking an opposite turn from last week when there were only 85, having dropped off 23 from the week before. This week they increased to 105. But those favoring curtailing production in the district would like to see the diminishing of first reports as shown this week, allowing them to drop off while drilling wells are completed.

Lack of Water for Drilling

Lack of water for drilling purposes will no doubt affect drilling activities in the district also, for the rigs already running have taxed the various water supplies in the three areas, and contractors with spudders are doing a thriving business drilling shallow water wells, while farmers are leasing water rights to lakes and streams on their farms to the operators who are drilling nearby.

Another sure expenditure for operators in the district, probably within a few weeks, or at least a few months after the wells are brought in, is the expense of purchasing pumping equipment, which may be instrumental in preventing some of the operators from going ahead and drilling their leases. Although able to make arrangements to get the leases drilled, they may not be able to make further expenditures in the way of pumping equipment.

Northern Lathrop Extension

One northern extension to the Lathrop County Pool proved several hundred more acres to production this week. Stanolind Oil & Gas Co. and Weaver's No. 1 Everett in the W. Goodman Survey, slightly over a mile north of Gladewater but in Upshur County, made a considerable extension to production when it flowed for 15 minutes on the second drill stem test made. Total depth of the hole is 3,618 feet, and the oil sand was cored from 3,614-18 feet.

The second probable extension well in Upshur County showing good during the week was Humble Oil & Refining Co.'s No. 1 Phillips in the S. Harrel Survey which topped the Austin chalk at 3,208 feet, or 15 feet lower than the Stanolind Oil & Gas Co. and Weaver's No. 1 Everett, several miles to the west. This slight difference makes the test look practically sure for a producer which will prove about another three-quarter of a mile northern extension to the main part of the Lathrop Pool. Six-inch casing was set at 3,585 feet and as soon as the cement sets and plug is drilled possibilities of the test will be definitely told.

Gregg County Test

One exceptionally interesting test is National Securities Co.'s No. 1 Vernon in the William W. Avery Survey on the western side of Gregg County, approximately 1 mile west of the Selby Oil & Gas Co.'s No. 1 Snavely. This test logged the base of the Pecan Gap chalk at 2,634 feet or 26 feet lower than the Snavely well, but as the Pecan Gap chalk cannot be absolutely relied upon in this district, the Austin chalk will be used as the principal marker which is used in judging the possibilities of the test when it gets deep enough to pick up that second chalk.

Iowa-Payne's No. 1 Walker in the E. H. Grisham Survey, 1¼ miles south of the Snavely well and about one-half mile northwest of the Sinclair Oil & Gas Co.'s No. 1 Cole, came in this week making 72 bbls. the first 10 minutes through tubing and casing, flowing open, with a tubing pressure of 345 pounds. Top of the sand was logged at 3,313 feet, and total depth of the hole is 3,322 feet. There was no salt water showing with the oil regardless of the well producing from below the water level. The well marks another western extension to the Gregg County area.

Owen and Sloan's No. 1-B Starnes in the Samuel Epps Survey, in the northeastern part of Smith County, which was closely watched during the past three weeks, was abandoned this week at a total depth of 4,164 feet after logging top of the Georgetown lime at 4,162 feet, with a surface elevation of 356 feet. Some salt water was encountered from 3,879-99 feet.

Hurlburt and Brown's No. 1 Mackie in the G. Y. Chambers Survey, in the extreme northeastern part of Gregg County, one of the most interesting and closely watched wildcat tests in the area, is shut down at 3,606 feet waiting on orders, and standing at the contract depth. Base of the Pecan Gap chalk was logged at minus 2,622 feet, or 17 feet lower than Eslick and Little's well a little over a mile to the southwest. Elevation of the test is 322 feet. It will perhaps be carried down deeper. At the present time it appears as the extreme northeastern marker of the Lathrop area.

Bottom Hole Tests

Bottom hole tests in the Joiner and Kilgore Pools show that pressure is holding up better than expected, but that temperatures are exceedingly high, proving the proximity of salinity. On a bottom hole test made on the Humble Oil & Refining Co.'s No. 3-B Laird in the Kilgore Pool, at a total depth of 3,660 feet, the pressure showed 1,315 pounds at 163 degrees. A test on Tidal Oil Co.'s No. 2 Nat Bean in the same pool, tested 1,317 pounds at a total depth of 3,620 feet. Tidal Oil Co.'s No. 1 Hale in the Joiner Pool tested 1,332 pounds at a total depth of 3,610 feet. These three tests prove the uniformity of the pressure in the two areas, the wells being approximately 8 miles apart.

But while the pressure seems to be uniform in these two areas, many wells have fallen off on production or have gone dead, and a survey of the Joiner area showed that 85 wells needed pumping units to produce them, some of the units being used only to agitate the wells to make them flow, while some other wells pumped entirely off, and had to be shut down until the holes filled again. Eighty-five wells requiring pumping in the Joiner Pool is almost one-fourth of the number on production giving some idea as to how production has fallen off in the pool, and what might be expected if drilling is continued as it has been. Lack of pressure in the pool will act as another curtailment feature.

Southwest of Kilgore

An interesting test southwest of the Kilgore Pool which was completed this week and did not show any salt water, is E. L. Chapman's No. 1 Oren Russell in the J. English Survey, Rusk County, approximately 2 miles north of Southern Crude Oil Co.'s producer which was thought to have encountered some water, but has not shown any to date, according to the company's production office. Sand in the Russell test was cored from 3,671-77 feet, and with a surface elevation of 338 feet bottom of the hole shows a minus datum of 3,339 feet, or around 19 feet below the water level in the area.

The Simms Oil Co. and Arkansas Fuel Oil Co. are paying 15 cents per barrel for royalty oil in the Gregg County area, as per announcements this week.

Tank Car Shipments

Tank car shipments have been decreasing each week for the past three weeks in the East Texas district, the greatest cause for this probably being the lack of new contracts, and the not renewing of contracts which have been in force during the past few months, which have been running out week by week. Last week's shipments by tank cars averaged 105,755 bbls. daily. Trunk line shipments also fell off during the past week, dropping from 240,867 bbls. per day to 224,965 bbls. per day. Runs to refineries almost doubled, jumping from 12,920 bbls. during the previous period to 25,372 bbls. per day during the past week. Runs to storage declined a small amount, dropping off to 15,362 bbls. per day. Total distributions shows 371,362 bbls. per day, as against 392,026 bbls. daily during the previous period.

H. R. Dickerson, vice president of the Arkansas Fuel Oil Co., has been named as the seventh member of the arbitration committee of seven directing the Cranfill plan in East Texas. However, his company has taken a stand in opposition to the plan.

A. B. Capers, now acting as proration umpire in the Longview district of East Texas, has been appointed as umpire for all of the West Texas district. He will

(Continued on Page 30)

EAST CENTRAL TEXAS WILDCATS

Week Ended June 22

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks:
Riango Oil Co.'s No. 1 J. Lynn, 1,400 ft. from NE line and 7,425 ft. from E line of survey, R. Brown Sur.	Shut down 1,200 ft.
H. B. McConnell et al's No. 1 N. B. Watson, 500 ft. from W line and 4,850 ft. from N of S line of survey in S half of 129-ac. tract, M. Main Sur.	Derrick.

ANGELINA COUNTY

R. O. Moore's No. 1 Abney Estate, 50 ft. N of Blk. No. 6, immediately out of city limits of Lufkin	T. D. 1,350 ft.; set 6⅝-in. csg.; bailed dry.
Pollick Oil Co.'s No. 1 Sessions, 1,250 ft. from N and 1,350 ft. from E line of Jesus De La Garza Sur.	Shut down 3,600 ft.

BOWIE COUNTY

Tom Bell's No. 1 Merritt, 1,225 ft. from N and 875 ft. from E line of survey, T. S. McKinney Sur.	Drlg. 2,812 ft.
Devore and Midfield's No. 1 Roy B. Cooper, 250 ft. from N and 250 ft. from E line of Cooper 115-ac. tract, W. M. Ward Sur.	Drlg. 2,520 ft.
Parkering-Jones et al's No. 1 W. W. Whybark, 200 ft. from S and W of SW cor. of J. A. Dyer Sur.	Derrick.
Lee Timberlake et al's No. 2 Julius N. Tidwell, 655 ft. from E and 2,510 ft. from S of survey in L. M. Rice Sur.	Salt water on drill stem test; shut down 3,000 ft.

CAMP COUNTY

W. E. Duke et al's No. 1 L. B. McCaslen, 2 miles NW of Lafayette, Mary Hays Sur.	Drlg. 350 ft.
Illinois Drlg. Co.'s No. 1 E. A. King, 150 ft. E of railroad and 150 ft. N of S line of E. A. King 318-ac. tract, E. A. Peek Sur.	Spudded and shut down.

CHEROKEE COUNTY

Ben Banner's No. 1 J. Williams Estate, 150 ft. S and 300 ft. W of SE cor. of the N. Hogg heirs and in the J. L. Hogg heirs Sur.	Drlg. 3,750 ft.
Denman et al's No. 1 Mrs. Renfroe, 330 ft. N of S line and 330 ft. E of W line of farm, Uriah Moore Sur.	Shut down.
Grey et al's No. 1 McGee, 1,600 ft. from W and 200 ft. S of NE cor. of McKnight Sur.	Drlg. 3,909 ft.
Helen-Clare Oil Co.'s No. 1 Mrs. M. P. Perkins, 1,800 ft. from N and 450 ft. from W of survey, Thomas Stafford Sur.	Rig up.
William A. Stone's No. 1 Blount Decker, 900 ft. E of E line of S. Selman Sur. and 1,200 ft. S of N line of E. M. Decker 406-ac. tract in George Ruddle Sur.	Drlg. 5,250 ft.
Walton Oil Co.'s No. 1 E. Singletary, 250 ft. W and 150 ft. N of NE cor. of M. Lacey Sur. and in Walters Sur. on Singletary 84-ac. tract	T. D. 2,960 ft.; shut down.

DALLAS COUNTY

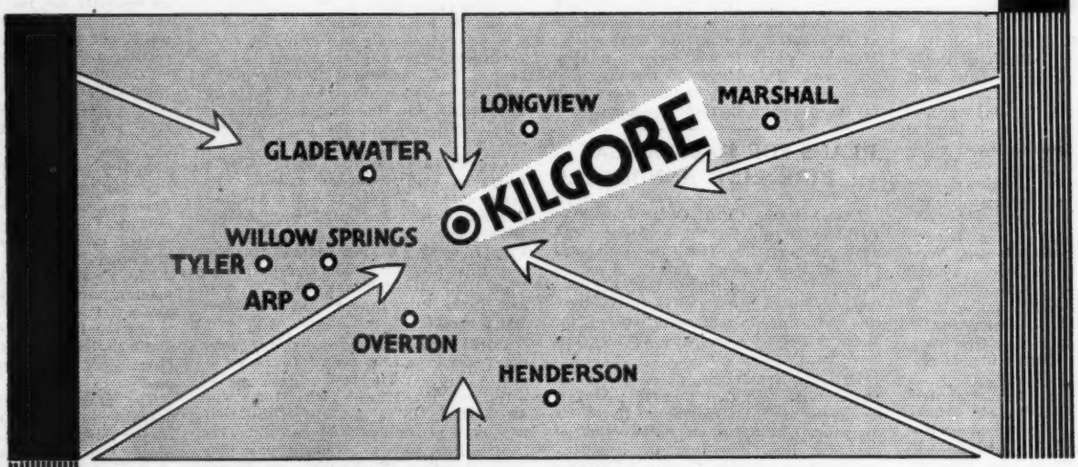
Paris' No. 1 Wilkinson, 2,787 ft. from NW and 3,341 ft. from SW of John P. Anderson Sur.	T. D. 870 ft.; shut down.

DELTA COUNTY

Delta Development Co.'s No. 2 Mallie Ablowich, 300 ft. S of No. 1 Cooper, Townsite Sur.	Shut down 3,128 ft.
D. S. Hood's No. 1 J. J. Balser, 195 ft. from S and 550 ft. W of Balser 40-ac. tract in SE cor. T. B. Laddin Sur.	Derrick blew down.
Worthington and Stedman's No. 1 W. H. Dejehett, 150 ft. from S and 776 ft. from W of 52-ac. tract, E. Chick Sur.	Shut down 1,927 ft.

(Continued on Page 106)

GARDNER-DENVER STORE IN KILGORE TEXAS



IN order to provide "right now" service for users of Gardner-Denver products the Gardner-Denver Company has opened a store in Kilgore, Texas. This Store will carry a complete line of Steam Pumps, Power Pumps, Line Pumps, Boiler Feed Pumps and Compressors. ▪ ▪ The new Gardner-Denver store will also provide adequate stocks of all parts for complete servicing.

GARDNER-DENVER COMPANY
QUINCY, ILLINOIS

GDJ-6-21-GRAY

GARDNER-DENVER

Pipe Line Construction News

SOUTHWEST LOUISIANA GAS SYSTEM READY

SHREVEPORT, La., June 22.—Natural gas will be made available in Lake Charles, La., during the week and will be introduced as rapidly as possible in more than 30 additional towns and communities in Louisiana along the new extension of the United Gas Public Service Co. pipe line from Kirbyville in East Texas to Franklin, La., according to an announcement from the general offices of the United Gas System, Houston, Tex.

The United Gas Public Service Co., chief operating subsidiary of the United Gas Corp., has purchased the gas distribution system of the Gulf States Utilities Co. in Lake Charles, which has been used to provide manufactured gas for the city's use. Lake Charles was the only city along the new extension to have manufactured gas, and its advent in the other communities will provide a new type of fuel altogether.

Lake Charles will serve as division headquarters for the United Gas Public Service Co. in operating its new properties.

The main line of the Louisiana project is 156 miles in length. Lateral lines of the main line total 264 additional miles. The sizes of pipe used vary from 14-inch to 2-inch. In addition to Lake Charles the new fuel will be available to the following:

DeQuincy, Crowley, Jennings, Kinder, Oberlin, Rayne, Sulphur, Welsh, West Lake, Broussard, Church Point, DeRidder, Elton, Oakdale, St. Martinsville, Vinton, Youngsville, Abbeville, Bunkie, Cheneyville, Erath, Franklin, Jeanerette, Le-Compto, Milton, New Iberia, Opelousas, Cottonport, Mansura, Marksville, Merryville and probably Breaux Bridge.

After the change-over from manufactured to natural gas is effected in Lake Charles, the towns along the main line between Lake Charles and Kirbyville will be given service. These are Sulphur, DeQuincy, Vinton, DeRidder and Merryville. Others will be added when city distribution systems are completed.

In addition to the fuel service for domestic and commercial consumption, the new extension will serve many Louisiana industries, among which are paper mills, sulphur mining operations, sugar refineries, lumber mills and salt mines.

WHITE EAGLE LINE

White Eagle Oil & Refining Co. announces that it will start work at once on its 6-inch pipe line to be laid to the Rits-Canton and Decker Pools in McPherson County, Kansas. This line is to be laid from Valley Center in Sedgwick County. A connection is to be made at Valley Center with a 10-inch line running to the refinery at Augusta. A survey for the route of the line is to be made this week. Estimated cost is $400,000.

WELDING CONTRACT LET

The Welding Engineering Co. of Bartlesville, Okla., has been awarded the contract for electric welding 124 miles of 26-inch pipe for the Southern Fuel Co. of Los Angeles, Calif. The line runs from Kettleman Hills to Los Angeles. Construction is already well under way.

LOUISIANA GAS LINES

G. H. Moyer, superintendent for the Texas Construction Co., which has been installing pipe lines for natural gas in cities and towns in Southwest Louisiana, states that he has completed the laying of pipes in DeQuincy, Merryville and DeRidder.

WESTERN SERVICE LINE TO MISSOURI CONSUMERS

For the first time, citizens in a group of communities in southwestern Missouri were burning natural gas last Sunday, following the opening of a new 8-inch gas pipe line in that area by the Western Service Corp. of Oklahoma City.

Completion of the first unit of the gas transmission system of Western Service company was marked by a celebration Saturday night at Butler, Mo., district division point for the company. City officials, civic leaders and citizens of 10 communities surrounding Butler participated in the celebration. Earl R. Ernsberger, president and general manager of Western Service Corp.; Lauren H. Clegg, publicity director, and other officials of the company represented the company at the celebration.

The new pipe line, which includes about 61 miles, is the first unit of a 110-mile line, extending from the company's mains at Pleasanton, Kans., into southwestern Missouri, where it will serve a total of 18 towns. In addition to the pipe line, new gas distribution systems were built by the company in these communities.

PLANS FOR $14,000,000 GAS PIPE LINE ANNOUNCED

OKLAHOMA CITY, Okla., June 20.—Preliminary surveys for a 20-inch natural gas pipe line from the Oklahoma City oil field through Tulsa and out of the State to the north, to cost $14,000,000, have been made and early construction is planned, representatives of the Western Service Corp, with headquarters here, have announced.

Earl R. Ernsberger, president of the corporation, said that a large gas market north of Tulsa had been offered his company, contingent on construction of the pipe line, and that the company could obtain an open flow of 1,750,000,000 feet of gas daily in the Oklahoma City Field. Available gas reserves along the route of the projected line would provide an additional 2,000,000,000 feet of daily open flow, if necessary, he said.

Mr. Ernsberger refused to comment on whether his company would seek a franchise to serve Tulsa with gas. The company has a franchise proposal before the city of Shawnee, and should this franchise be granted, the proposed pipe line would pass through Shawnee, it was said.

ATLANTIC MAY LAY LINE

It is reported the Atlantic Pipe Line Co. of Dallas, Tex., will lay a line northward out of the Barbers Hill Field, Chambers County, Texas, to connection with its trunk line extending from West Texas to Atreco (Beaumont). The line probably will be 6-inch and about 45 miles long. Atlantic has a 6-inch line out of Barbers Hill extending to a barge loading point at Cedar Bayou but the proposed line will facilitate movement of oil. R. W. Howe, Dallas, Tex., is president of the company.

INSTALL NEW PUMPS

The oil pipe line division of the Empire Oil & Refining Co. has installed a new centrifugal pumping unit at Vinco pump station and a similar unit at the Edmond, Okla., station. These two new units increase the capacity of the Empire's oil pipe line between Oklahoma City and Cushing by 2,000 to 4,000 bbls. a day. The new units each include a 250-horsepower motor and a three-stage 4-inch centrifugal pump.

PIPE LINE EARNINGS DURING THE PAST YEAR

WASHINGTON, D. C., June 22.—Despite the slump in the price of crude oil, satisfactory dividends were paid to pipe line stockholders during 1930, annual reports of 40 companies to the Interstate Commerce Commission disclose.

That these profits may to some extent be curtailed by rail competition this year is believed probable in view of the recent decision of the Interstate Commerce Commission permitting the rail carriers to cut rates up to 25 per cent to more evenly meet the competing pipe lines.

The average dividend paid upon common stock in the 40 pipe line companies in 1930 was approximately 32 per cent. The reports show that the dividends totaled $132,826,432, with the capital stock of the companies listed at $415,252,331, either par value or consideration received upon no-par shares.

Against total investment in pipe lines and other essentials to the industry, the companies earned approximately 15.2 per cent. The companies' investments in lines were reported to be $772,710,908 and other investments, amounting to $96,183,651, brought the total to $868,894,559.

Companies, in addition to the Gulf of Oklahoma, that paid outstanding dividends during the year were the Arkansas Transit Corp., 220 per cent; Empire Pipe Line Co., 140 per cent; Stanolind Pipe Line Co., 61 per cent; Texas-Empire Pipe Line Co., 135 per cent; Texas Pipe Line Co. of Texas, 93.4 per cent, and Texas Pipe Line Co. of Oklahoma, 100 per cent.

In the actual amount of dividends paid, the Texas Pipe Line Co. of Texas led all others with $23,300,000. Close on its heels was the Humble Pipe Line with $20,000,000, but in the case of this company the percentage was but 40. The Prairie Pipe Line Co. likewise paid dividends totaling $20,000,000, or 20 per cent, while the dividends of the Stanolind company were $17,281,863 and of the Magnolia company $11,039,988. The Continental Pipe Line Co., whose common stock is no-par value, paid $250 a share on 5,000 shares of stock.

The important place in the oil industry that the pipe line has taken is graphically shown by the reports. From a mere skeleton of a few years ago, the system has grown to include 88,726 miles of line owned and operated by the 40 companies. This includes 45,911 miles of trunk lines and 42,805 miles of gathering lines.

During 1930 these lines transported 1,172,165,080 bbls. of oil, for which they received $237,910,083. There were 21,948 men and women employed by the companies, and the year's pay roll was $40,472,914.

By far the largest of the individual companies, so far as pipe mileage is concerned, is the Prairie company, which at the end of 1930 boasted of a system totaling 13,259 miles. The Humble company, however, with less than half of this mileage, 6,275, led in the amount of oil transported with 172,385,186 bbls., the volume shipped through Prairie lines being 102,115,703 bbls.

Figures for other leading pipe line companies follow:

Gulf Pipe Line Co., 4,480 miles and 77,016,000 bbls.; Illinois Pipe Line Co., 5,821 miles and 61,183,000 bbls.; Magnolia Pipe Line Co., 5,671 miles and 97,714,000 bbls.; Oklahoma Pipe Line Co., 2,976 miles and 29,674,934 bbls.; Shell Pipe Line Corp., 3,564 miles and 101,636,000 bbls.; Stanolind Pipe Line Co., 6,901 miles and 79,857,000 bbls., and Texas Pipe Line Co. of Texas, 4,872 miles and 42,589,000 bbls.

TIOGA-SYRACUSE GAS LINE MAKES PROGRESS

WELLSBORO, Pa., June 20.—The Lycoming Natural Gas Co. will start early next week to lay 30-inch road crossing lines in the Tioga Field as a preliminary step to laying the gas supply line north from that field to Syracuse.

Lycoming officials stated they did not know when they would start their field supply line, by which all producing wells are to be connected with the main line north, as several near producers will be drilled in first. Eighty per cent of the rights of way have been obtained, they further stated, with those in the northern section of the line lacking. The Tioga Field and southern New York rights have been taken.

The work to start early next week will be laying of 30-inch road crossing lines as conduits for the 20-inch line out of the field. The feeder lines between the wells will probably be 10-inch pipe. Lycoming owns six producers in the field at the present time with a capacity of 100,000,000 feet.

EAST TEXAS PROJECTS

FORT WORTH, Tex., June 22.—Construction of a tank farm by the British-American Oil Corp. is to be started near Kilgore. Four 80,000-bbl. tanks are to be erected, giving the company 320,000 bbls. of storage.

The F. & M. Co. is building a 50-car loading rack at Camp Switch on the Texas & Pacific Railroad in Gregg County, in the Lathrop area, and is building a 6-inch line to serve its leases in the Castleberry and Hooper Surveys in the pool.

The Magnolia Petroleum Co., which has already moved five 80,000-bbl. tanks to its tank farm at Center Station in Shelby County, is reported to be contemplating the moving of 20 other such tanks from its Midland tank farm in West Texas to the East Texas district, possibly to the Center tank farm.

PECOS VALLEY POOL LINE

FORT WORTH, Tex., June 22.—The Pecos Valley Pipe Line Co. is nearing completion of its 9 miles of 4-inch line from the Pecos Valley Pool, northern Pecos County, to the Grand Falls Pool, southern Ward County, where the Wickett Refining Co. has a 4-inch line. The former line will tie into the latter at this point, and the oil will be carried to the Wickett Refining Co.'s plant, and Blue Bonnett refinery at Wickett on the Texas & Pacific Railroad, 16 miles north of the Grand Falls Pool. This line gives the pool its only outlet at the present time, a former 2-inch line serving the pool having been abandoned some time ago.

REPLACING OLD LINE

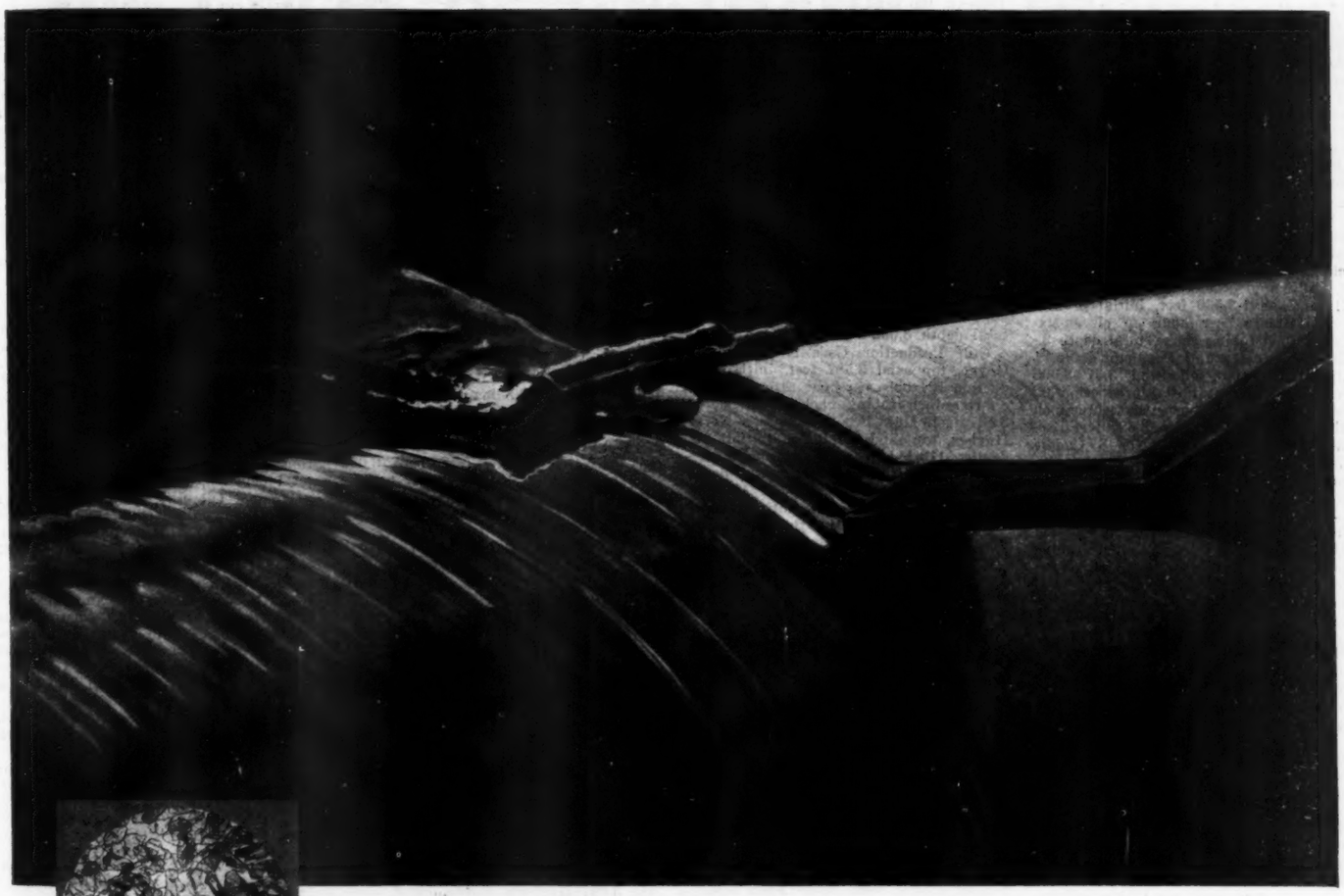
The distribution department of the Bartlesville Gas & Electric Co. is laying 1,500 feet of 6-inch intermediate pressure welded steel main which will replace a 4-inch intermediate pressure line out of the town border station in that city. This line serves the east portion of Bartlesville together with the power plant of the Public Service Co. of Oklahoma and the Jefferson School.

GARDNER, KANS., LINE

W. B. Ossenbeck, manager of the Union Public Service Co. property at Wellsville, Kans., has been busy at Gardner, Kans., laying a 2-inch line for the betterment of service in Gardner.

Exclusive flake-type internal reinforcement insures great strength . . . long service . .

Barrett Specification PIPE LINE ENAMELS



This close-up picture illustrates revolving pipe method of applying Barrett Specification Pipe Line Enamel.

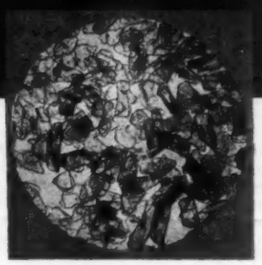
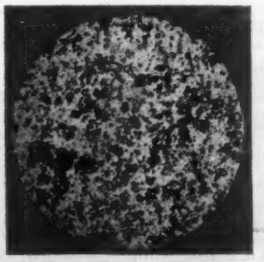


Photo-micrograph shows how flakes of internal reinforcement used by Barrett tend to interlock. They laminate with water-proofing agent and give Barrett Pipe Line Enamel unusual tensile strength and toughness.



And here is a photo-micrograph showing how ordinary filler, the granular or dust-type, looks. It is composed of smoothly surfaced particles in loose contact.

IN Barrett Specification Pipe Line Enamels a flake-type, mineral reinforcement is used. These flakes tend to interlock and laminate with the water-proofing agent. Thus Barrett Enamels have exceptional tensile strength and toughness. Further, the reinforcement material is chemically inert, non-absorbent and highly dielectric. There is a Barrett Specification Pipe Line Enamel to meet every problem of pipe line protection.

For pipe of large diameter The Barrett Company will furnish equipment required to revolve pipe and spread enamel.

The Barrett Company
40 Rector St., New York, N. Y.

EAST CENTRAL TEXAS

(Continued from Page 26)

take over his new duties July 1. Ray Richmond, formerly proration umpire of the Yates and Crane-Upton Pools in West Texas, is in charge of the East Texas district, located at Tyler.

COMPLETIONS IN EAST CENTRAL TEXAS

Gregg County

Yount Lee Oil Co.'s No. 1 Thrasher and Stuckey, oil sand 3,521-41 feet, initial production 108 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,541 feet. Walker and Harrison's No. 1 E. L. Walker, top sand 3,580 feet, total depth 3,604 feet, plugged back to 3,594 feet and tested salt water, dry and abandoned. Thurman and others' No. 1 W. H. Ritchey, oil sand 3,568-89 feet, 3,595-3,616 feet, initial production 378 bbls. in 15 minutes on eleven-sixteenths-inch tubing and casing chokes, total depth 3,616 feet. A. H. Farver and others' No. 1 Maggie Magrill, oil sand 3,670-3,712 feet, initial production 72 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,712 feet.

Sun Oil Co.'s No. 1 G. W. Tate, oil sand 3,506-38 feet, initial production 102 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,538 feet. J. R. Smith and others' No. 1 J. B. Doby, oil sand 3,491-3,530 feet, initial production 100 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,530 feet. Roeser and Pendleton's No. 1 Arthur Christian, oil sand 3,572-3,606 feet, 3,600-25 feet, initial production 92 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,627 feet. Republic Production Co.'s No. 3 Caddie Fisher, oil sand 3,432-50 feet, initial production 530 bbls. per hour open flow, total depth 3,457 feet.

Navarro Oil Co.'s No. 1 Buck Harris, oil sand 3,520-39 feet, initial production 218 bbls. per hour on 2½-inch tubing open, total depth 3,554 feet. Lucey Petroleum Corp.'s No. 1 McHaney and Loeb, oil sand 3,515-62 feet, initial production 114 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,562 feet. Humble Oil & Refining Co.'s No. 1 A. L. Hughes, oil sand 3,602-28 feet, 3,633-38 feet, initial production 105 bbls. per hour on three-quarters-inch tubing choke, total depth 3,638 feet.

Houston Oil Co.'s No. 1 W. A. Burknight, oil sand 3,571-3,630 feet, initial production 173 bbls. per hour on 1-inch tubing choke, total depth 3,630 feet. Gulf Production Co.'s No. 1 J. C. Lacey and others, oil sand 3,470-92 feet, initial production 110 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,492 feet.

F. H. E. Oil Co.'s No. 1 B. C. Christian, oil sand 3,629-54 feet, initial production 113 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,654 feet. Harry Elliott and others' No. 1 Woodley Jones, oil sand 3,531-42 feet, initial production 72 bbls. per hour on twenty-eight-sixty-fourths-inch tubing choke, total depth 3,542 feet. Daisy Oil Co.'s No. 1 H. B. Ware, dry and abandoned, total depth 3,717 feet. Cranfill & Reynolds' No. 1 A. D. Porter, oil sand 3,668-94 feet, initial production 155 bbls. in 30 minutes through 2½-inch tubing open, total depth 3,694 feet.

Barnsdall Oil Co.'s No. 4 J. G. McGrede, oil sand 3,579-3,611 feet, initial production 85 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,611 feet. Arkansas Fuel Oil Co.'s No. 2-C F. K. Lathrop, oil sand 3,572-98 feet, initial production 144 bbls. in 15 minutes open flow, total depth 3,598 feet. Stanolind and Simms Oil Co.'s No. 1 L. E. Persons and others' oil sand 3,460-80 feet, initial production 100 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,480 feet. Alco Royalty Co.'s No. 1 P. K. Johnson, oil sand 3,608-20 feet, initial production 56 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,621 feet.

Harry Elliott's No. 1 McNeeley, top sand 3,730 feet, initial production 327 bbls. in three hours on seven-sixteenths-inch casing choke, total depth 3,748 feet. Houston-Heep Oil Co.'s No. 2-A Hughey, top sand 3,507 feet, initial production 70 bbls. per hour through twenty-seven-sixty-fourths-inch tubing choke, total depth 3,550 feet. H. P. Key's No. 1 King, top sand 3,637 feet, initial production 95 bbls. per hour through three-fourths-inch casing choke, total depth 3,648 feet.

Magnolia Petroleum Co.'s No. 1 W. B. Goyne, top sand 3,611 feet, initial production 134 bbls. first 15 minutes through open tubing and casing, total depth 3,618 feet. Shell Petroleum Corp.'s No. 1 John Douglas, top sand 3,579 feet, initial production 115 bbls. per hour through three-fourths-inch tubing choke, total depth 3,595 feet. Doctor Duncan's No. 1 B. Duncan, top sand 3,621 feet, initial production 131 bbls. per hour through three-fourths-inch tubing choke, total depth 3,636 feet.

The Texas Company's No. 1 W. Baxter, top sand 3,611 feet, base 3,643 feet, initial production 78 bbls. per hour through one-half-inch tubing choke, total depth 3,644 feet. The Texas Company's No. 1 Cole, top sand 3,531 feet, initial production 360 bbls. per hour through 1-inch tubing choke, total depth 3,562 feet. Vise and others' No. 1 Cumi Wells, top sand 3,660 feet, initial production 92 bbls. per hour through three-quarters-inch tubing choke, total depth 3,668 feet. Byrd-Frost, Inc.'s No. 1 W. Smith, top sand 3,549 feet, initial production 125 bbls. in 30 minutes through open tubing, total depth 3,592 feet.

Gulf Production Co.'s No. 1 W. R. Goyne, top sand 3,587 feet, initial production 124 bbls. per hour through three-quarters-inch tubing choke, total depth 3,597 feet. Gulf Production Co.'s No. 2 Hughey, top sand 3,511 feet, initial production 113 bbls. per hour through three-quarters-inch tubing choke, total depth 3,537 feet. Heep Oil Co.'s No. 1 S. B. Hall, top sand 3,672 feet, initial production 90 bbls. per hour through 1-inch tubing choke, total depth 3,681 feet. Humble Oil & Refining Co.'s No. 4-B S. S. Laird, top sand 3,581 feet, initial production 79 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,634 feet.

Iowa-Payne's No. 1 W. B. Walker, top sand 3,693 feet, initial production 74 bbls. in 10 minutes wide open, total depth 3,703 feet. Sinclair Oil & Gas Co.'s No. 4 M. T. Cole, top sand 3,571 feet, initial production 359 bbls. in 2 hours through open tubing, total depth 3,581 feet. Sun Oil Co.'s No. 3 Beall, top sand 3,608 feet, initial production estimated 90 bbls. per hour through three-quarters-inch tubing choke, total depth 3,622 feet. Shell Petroleum Corp.'s No. 3 W. W. Elder, top sand 3,568 feet, initial production 710 bbls. in 24 hours through various chokes, total depth 3,609 feet.

Schubert Drilling Co.'s No. 1 Smith, top sand 3,537 feet, initial production 110 bbls. per hour through three-quarters-inch tubing choke, total depth 3,580 feet. Moss and others' No. 1 Marshall, top sand 3,519 feet, initial production 60 bbls. in 7 minutes through one 4-inch flow line on open casing, total depth 3,589 feet. Mid-Kansas Oil & Gas Co.'s No. 1 J. M. Blackman, top sand 3,636 feet, initial production 200 bbls. per hour total depth 3,652 feet.

Mid-Kansas Oil & Gas Co.'s No. 2 Barton, top sand 3,621 feet, initial production 250 bbls. per hour through open tubing, total depth 3,640 feet. W. A. Jones No. 1 G. Davis, top sand 3,636 feet, initial production 136 bbls. per hour through three-fourths-inch tubing choke, total depth 3,649 feet. Kingwood Oil Co.'s No. 1 Godfrey, top sand 3,556 feet, initial production 115 bbls. in 10 minutes through partly open casing and tubing, total depth 3,571 feet. Doss & Jones' No. 1 Ella Hegler, top sand 3,590 feet, base 3,616 feet, initial production 140 bbls. per hour through three-fourths-inch tubing choke, total depth 3,618 feet. Brown and others' No. 1 Blackman, top sand 3,602 feet, initial production 104 bbls. in 15 minutes open casing and tubing, total depth 3,618 feet.

Rusk County

British-American's No. 2 W. Ector, top sand 3,608 feet, initial production 125 bbls. per hour through various chokes on tubing, total depth 3,628 feet. Gulf Production Co.'s No. 2 Jernigan, top sand 3,655 feet, initial production 115 bbls. per hour through three-fourths-inch tubing choke, total depth 3,670 feet. Houston Oil Co.'s No. 1-A Nat Bean, top sand 3,577 feet, initial production 90 bbls. per hour through 1-inch tubing choke, total depth 3,690 feet. Lewis & Selby's No. 2 Peques, initial production 90 bbls. per hour through 1-inch tubing choke, total depth 3,690 feet.

Magnolia Petroleum Co.'s No. 3 C. C. Still, top sand 3,633 feet, initial production 195 bbls. in 15 minutes through open casing and tubing, total depth 3,636 feet. Burton Drilling Co.'s No. 3 E. B. S. Florey, abandoned location. Burton Drilling Co.'s No. 4 E. B. S. Florey, abandoned location. Gulf Production Co.'s No. 2 Rosa Russell, top sand 3,616 feet, initial production 62 bbls. per hour through three-eighths-inch tubing choke, total depth 3,675 feet.

Houston Production Co.'s No. 1 S. S. Laird, top sand 3,612 feet, base 3,714 feet, initial production 83 bbls. per hour through three-fourths-inch tubing choke, total depth 3,715 feet. Humble Oil & Refining Co.'s No. 1 J. E. Sexton, top sand 3,732 feet, initial production 120 bbls. per hour through three-fourths-inch tubing choke, total depth 3,783 feet. Madden and others' No. 1 Mose Mayfield, top sand 3,704 feet, initial production 200 bbls. in 24 hours, total depth 3,734 feet.

Snowden & McSweeney's No. 3 Bean, top sand 3,633 feet, initial production 94 bbls. per hour through three-fourths-inch tubing choke, total depth 3,666 feet. Warren's No. 1 Hindman, top sand 3,666 feet, initial production 124 bbls. in 20 minutes partially pinched, total depth 3,678 feet. Staley & Wynne's No. 1 Young, top Pecan Gap 2,684 feet, base 3,042 feet, top Austin chalk 3,490 feet, base 3,635 feet, sand 3,641-75 feet, initial production 600 bbls. first three hours open through casing, total depth 3,675 feet.

Republic Production Co.'s No. 1 L. P. Thrash, top Pecan Gap 2,763 feet, base 3,160 feet, top Austin chalk 3,580 feet, sand 3,762-93 feet, initial production 330 bbls. per hour open through tubing, total depth 3,793 feet. Phillips Petroleum Co.'s No. 1 L. J. Pinkston, top Pecan Gap 2,758 feet, base 3,062 feet, top Austin chalk 3,557 feet, sand 3,643-92 feet, initial production 750 bbls. per hour open through casing, total depth 3,692 feet. Kirby Petroleum Co.'s No. 2 Samp Stone, top Pecan Gap 2,682 feet, base 3,058 feet, top Austin chalk 3,476 feet, base 3,541 feet, sand 3,616-58 feet, initial production 568 bbls. per hour through casing and tubing, total depth 3,658 feet.

Humble Oil & Refining Co.'s No. 2 J. H. Wooley, top Pecan Gap 2,714 feet, base 3,091 feet, top Austin chalk 3,515 feet, sand 3,675-3,706 feet, sand 3,675-3,706 feet, initial production 87 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,706 feet. Humble Oil & Refining Co.'s No. 3 De Guerin, top Pecan Gap 2,727 feet, base 3,104 feet, top Austin chalk 3,551 feet, sand 3,702-50 feet, initial production 105 bbls. per hour through three-fourths-inch tubing choke, total depth 3,750 feet. Gulf Production Co.'s No. 2 L. P. Thrash, top Pecan Gap 2,690 feet, base 3,050 feet, top Austin chalk 3,520 feet, sand 3,670-86 feet, initial production 167 bbls. per hour through tubing, total depth 3,686 feet.

Golding & Murchison's No. 1 M. A. Thrash, top Pecan Gap 2,730 feet, base 3,160 feet, top Austin chalk 3,605 feet, base 3,720 feet, sand 3,742-63 feet, initial production 132 bbls. per hour, total depth 3,763 feet. Danciger Oil & Refining Co.'s No. 1 Deason, top Pecan Gap 2,653 feet, base 3,057 feet, top Austin chalk 3,540 feet, base 3,585 feet, sand 3,641-74 feet, initial production 62 bbls. per hour through tubing, total depth 3,674 feet. F. L. Coogan's No. 1 Florence, top Pecan Gap 2,705 feet, base 3,048 feet, top Austin chalk 3,518 feet, base 3,640 feet, sand 3,675-3,741 feet, initial production 700 bbls. per hour, total depth 3,741 feet.

Big Indian Oil Co.'s No. 1 Deason, top Pecan Gap 2,700 feet, base 3,064 feet, top Austin chalk 3,560 ft., base 3,609 feet, sand 3,650-66 feet, initial production 100 bbls. per hour through casing, total depth 3,716 feet. Ward Oil Co.'s No. 3 Giles, top Pecan Gap 2,700 feet, base 3,118 feet, top Austin chalk 3,583 feet, base 3,665 feet, sand 3,706-34 feet, initial production 107 bbls. per hour open through tubing, total depth 3,746 feet.

Vitex' No. 3 Eaton, top Pecan Gap 2,755 feet, base 3,163 feet, sand 3,750-74 feet, initial production 275 bbls. per hour open through tubing, total depth 3,774 feet. Turman's No. 3 Dark, top Pecan Gap 2,695 feet, base 3,112 feet, top Austin chalk 3,532 feet, sand 3,680-3,711 feet, initial production 42 bbls. first hour open through tubing, total depth 3,711 feet.

Tidal Oil Co.'s No. 1 Joel Shaw, top Pecan Gap 2,660 feet, base 3,093 feet, top Austin chalk 3,558 feet, sand 3,702-46 feet and 3,750-55 feet, initial production 168 bbls. per hour through open tubing, total depth 3,755 feet. Tidal Oil Co.'s No. 2 Pinkston, top Pecan Gap 2,675 feet, base 3,160 feet, top Austin chalk 3,675 feet, base 3,755 feet, sand broken 3,758-3,810 feet, initial production 147 bbls. per hour through open tubing, total depth 3,810 feet. Tidal Oil Co.'s No. 1 Pinkston, top Pecan Gap 2,723 feet, base 3,154 feet, top Austin chalk 3,583 feet, sand 3,778-86 feet, initial production 136 bbls. per hour open through tubing, total depth 3,786 feet.

The Texas Company's No. 1 J. D. Stone, top Pecan Gap 2,685 feet, base 3,007 feet, top Austin chalk 3,570 feet, sand 3,661-65 feet and 3,690-98 feet, initial production 150 bbls. per hour open through tubing, total depth 3,698 feet. Sun Oil Co.'s No. 1 Horace Schuler, top Pecan Gap 2,705 feet, base 3,035 feet, top Austin chalk 3,543 feet, base 3,630 feet, sand 3,641-63 feet, initial production 200 bbls. per hour through tubing, total depth 3,663 feet.

Humble Oil & Refining Co.'s No. 1 Wheelis, top Pecan Gap 2,720 feet, base 2,262 feet, top Austin chalk 3,592 feet, sand 3,784-91 feet, initial production 82 bbls. per hour through open tubing, total depth 3,791 feet. Gulf Production Co.'s No. 1-B Keeling, top Pecan Gap 2,762 feet, base 3,140 feet, top Austin chalk 3,558 feet, sand 3,715-40 feet, initial production 67 bbls. per hour open through tubing, total depth 3,740 feet. Gulf Production Co.'s No. 2 Grissom, top Pecan Gap 2,670 feet, base 3,100 feet, top Austin chalk 3,488 feet, sand 3,652-58 feet, initial production 152 bbls. per hour open through tubing, total depth 3,658 feet.

Great Eastern Oil Co.'s No. 1 Mayfield-Alford, top Pecan Gap 2,750 feet, base 3,212 feet, top Austin chalk 3,550 feet, base 3,656 feet, sand 3,669-92 feet, initial production 207 bbls. per hour through casing, total depth 3,692 feet. Golding & Murchison's No. 1 E. E. Thrash, top Pecan Gap 2,683 feet, base 3,050 feet, top Austin 3,584 feet, base 3,624 feet, sand 3,704-14 feet, initial production 142 bbls. per hour through open tubing, total depth 3,714 feet. R. H. Deering & Son's No. 1 T. H. Goforth, top Pecan Gap 2,760 feet, base 3,161 feet, top Austin 3,622 feet, base 3,687 feet, sand 3,726-79 feet, initial production 100 bbls. per hour through 1-inch tubing choke, total depth 3,787 feet.

Consolidated Oil Corp.'s No. 7 Jobe, top Pecan Gap 2,623 feet, base 2,940 feet, top Austin 3,439 feet, sand 3,583-3,600 feet, initial production 115 bbls. in four hours by heads through casing, total depth 3,686 feet. Sinclair Oil & Gas Co.'s No. 1 D. W. March, dry and abandoned, total depth 3,832 feet, top Georgetown lime 3,822 feet, top Pecan gap 2,980 feet, base 3,234 feet, top Austin chalk 3,618 feet. Shell Petroleum Corp.'s No. 4 Rosa Russell, top sand 3,724 feet, initial production 89 bbls. per hour through three-fourths-inch tubing choke, total depth 3,765 feet.

Shell Petroleum Corp.'s No. 2 Rosa Russell, top sand 3,717 feet, initial production 205 bbls. per hour through open tubing, total depth 3,754 feet. Shell Petroleum Corp.'s No. 1 Abe Holt, top sand 3,622 feet, initial production 194 bbls. in two hours through three-fourths-inch tubing choke by heads, total depth 3,740 feet. Shell Petroleum Corp.'s No. 1 T. H. Gill, top sand 3,613 feet, initial produc-

WASTE

Reduces Earnings just as certainly as Low Prices or Restricted Production

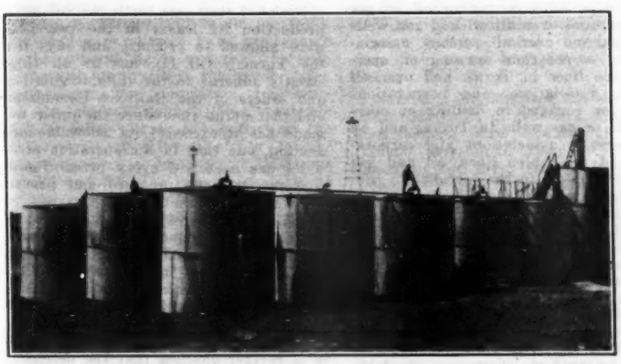
Maloney VAPOR-PRESSURE Tanks Eliminate a Serious Waste

To eliminate the waste resulting from the breathing of lease tanks is the same as increasing production from the lease or getting an increase in prices.

You can stop this waste by using Maloney *Vapor-Pressure* stock and flow tanks. These tanks are made of 12-gauge (or heavier) rust-resisting Keystone Copper Steel, strongly reinforced and tied with heavy 2-inch angles, and equipped with efficient combination valves set at 16 ounces pressure and 2 ounces vacuum. Painted with China Wood Oil base aluminum paint, which is durable, fume-proof and reduces heat absorption.

This construction restricts the movement of vapors—prevents the breathing out of valuable fractions, the loss of which reduces both the volume and gravity of the oil—increases your income from the same production and at the same scale of prices.

Maloney *Vapor-Pressure* Tanks in most cases will soon pay for themselves with the oil they save. All producers should consider this way to make more money.



One 750-Bbl. and fifteen 500-Bbl. Maloneys in the Houston, Texas, district. Erected by the Peer Bolted Steel Tank Co., distributer.

MADE OF

KEYSTONE AMERICAN COPPER STEEL

"Alone in Quality"

MALONEY TANK MANUFACTURING COMPANY

108 N. Peoria Ave., Tulsa, Okla.

Distributers at All Principal Petroleum Points

Packed in Steel-Bound Crates for Export

MALONEY

tion 104 bbls. per hour through three-fourths-inch tubing choke, total depth 3,624 feet.

Magnolia Petroleum Co.'s No. 3 Dick Wells, top sand 3,651 feet, initial production 65 bbls. per hour through three-fourths-inch tubing choke, total depth 3,660 feet.

Humble Oil & Refining Co.'s No. 9 J. N. Peterson, top sand 3,607 feet, initial production 68 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,630 feet. Kirby Petroleum Co.'s No. 1 Jeff Reddie, top sand 3,642 feet, initial production 135 bbls. first 30 minutes, total depth 3,740 feet. Humble Oil & Refining Co.'s No. 5-B S. S. Laird, top sand 3,579 feet, initial production 63 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,636 feet.

Humble Oil & Refining Co.'s No. 2 R. H. and W. L. Laird, top sand 3,589 feet, initial production 98 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,604 feet. Cordova Union Oil Corp.'s No. 1-B C. O. Christian, top sand 3,706 feet, initial production 112 bbls. per hour through three-fourths-inch tubing choke, total depth 3,727 feet. Beard-Hammond's No. 1 G. P. Perry, abandoned location.

Smith County

H. L. Hunt's No. 1 S. S. Cooke, top Pecan Gap 2,735 feet, base 3,078 feet, top Austin 3,670 feet, sand 3,720-32 feet, initial production 203 bbls. per hour through tubing, total depth 3,732 feet. Owen & Sloan Oil Co.'s No. 1-B Starnes, topped Georgetown lime 4,162 feet, dry and abandoned, total depth 4,164 feet.

Upshur County

W. H. Peckham and others' No. 1 J. W. Free, oil sand 3,650-85 feet, initial production 95 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,685 feet. Mudge Oil Co.'s No. 1 J. W. Free, oil sand 3,709-40 feet, initial production 91 bbls. per hour on forty-eight-sixty-fourths-inch tubing choke, total depth 3,740 feet.

Cherokee County

D. H. Byrd's No. 1 Dixie farm, dry and abandoned, total depth 4,373 feet. Rowan & Nichols and Tidal Oil Co.'s No. 1 W. T. Norman, dry and abandoned, total depth 4,389 feet.

Nacogdoches County

Fain & McGaha's No. 1 J. L. Pirtte, dry and abandoned, total depth 3,953 feet.

Van Zandt County

Pure Oil Co.'s No. 2 H. P. Tunnell, initial production estimated 120 bbls. on eleven-sixteenths-inch choke, total depth 2,976 feet. Pure Oil Co.'s No. 2 J. R. Shivers, initial production estimated 75 bbls. on eleven-sixteenths-inch choke, total depth 2,862 feet. Shell Petroleum Corp.'s No. 10 E. L. Fowler, initial production estimated on eleven-sixteenths-inch choke 100 bbls., total depth 2,942 feet.

PRORATION DEVELOPS NEW KIND OF SUIT

(Continued from Page 18)

as there are differences in shut-in pressure in the Kilgore and the Joiner Pools. The briefs describe the East Texas Pool as follows:

"The limits of said pool are defined by the deposition of a large body of sand, known as the Woodbine, along an ancient shore line which is now the east edge of the pool, the sand having been laid down in a shallow sea to the west of this shore line; the portion of this shore line extending through Rusk and Gregg Counties and into Upshur County was later arched into a broad fold and elevated a considerable distance above the syncline which runs north and south in the vicinity of the town of Tyler; the oil and gas accumulation of this pool is found in this sand body on the west flank of the uplift: the eastern limits of the accumulation being defined by the pinching out of the Woodbine sand to the east along the shore line.

"The top of the oil producing sand in this pool ranges from about 3,150 feet below sea level, where it pinches out to the eastward along the east edge of the pool, to about 3,320 feet below sea level along the west edge of the pool.

"In the part of the pool which marks the location of this producing area the sand is soft and porous and oil occupies the space or pores between the sand particles; most of the gas, being in solution and under high pressure, is commingled with the oil, thus making the oil less viscous so that it passes more freely through the sand; in addition to this accumulation of oil and gas the Joiner Pool is underlain by salt water, and salt water is also encountered on the flanks of the structure.

"When the porous formation is penetrated by the drill there is naturally an area of low pressure at the well bore; the gas, which is in solution and under great pressure, expands and flows toward this low pressure area, carrying oil along with it, partly by actually pushing it through the porous sand and partly by transporting it as a film around the gas bubbles; the gas is, therefore, a very important agency, not only in the movement of the oil within the confines of the reservoir and toward the opening in the sand made by the wells but also in the lifting of the oil to the surface. The sand in this area being very porous, the gas and any oil which accompanies it move with little difficulty and without much resistance. Gas being more mobile than oil, there is a marked tendency on the part of the gas to by-pass the oil. For this reason, if the wells in the pool are permitted to flow wildly, without any attempt to preserve the back pressure, the gas energy is quickly dissipated, while the flow of the oil is retarded, as the propulsive influence of the gas becomes less and less effective. In such case the gas energy does its work only partially with respect to the oil encountered in the more permeable areas and is exhausted before it has expelled more than a small quantity of the oil. In the area of the Kilgore Pool the shutin pressure after the wells are completed ranges between 300 and 400 pounds per square inch and in the Joiner Pool 200 to 300 pounds per square inch. The reckless dissipation of this pressure results in a complete cessation of the natural flow of the oil and materially decreases the amount of oil which would ordinarily be recovered. The reservoir being continuous, connected and limited, any diminution, waste, destruction or injury to the gas and the gas pressure in any part of said reservoir decreases the volume of gas within the general formation and diminishes its pressure with respect to all wells drawing from the said reservoir, thereby inflicting a permanent injury upon the entire producing area.

Salt Water Conditions

"The body of salt water beneath and around the pool is subject to great pressure and lends its aid in propelling the oil and gas toward the low pressure areas surrounding wells which penetrate the oil horizon; when the gas pressure is depleted this water pressure of itself is insufficient to lift the oil to the surface, and the operator is compelled to equip wells for pumping and to pump the same at a very substantial cost; furthermore, as the gas pressure in said reservoir decreases and diminishes, the salt water constantly tends to enter the reservoir and destroy the same, thereby rendering entirely useless and worthless all wells which have been drilled in the area. Water encroachment is an ever present danger following upon any substantial decline in the volume and pressure of the gas in the producing formation. For this reason, it is necessary that the propulsive influences of both gas and salt water be utilized in such manner that all operators having access to the particular deposit will have the benefit and advantage of these natural forces to secure the maximum recovery of oil. If the forces are recklessly dissipated or improperly used they become destructive agencies and will reduce materially, or will destroy completely the recovery from the pool to the damage of all the operators in said pool.

"In the Kilgore Pool and Joiner Pool, because of the porosity of the sand, oil and gas move very rapidly in the early stages of a well's history, and set up definite drainage channels in the producing horizon; if a well is permitted to produce without restriction and the pressure of gas and water is given unlimited freedom, drainage channels are quickly formed and will within a short time extend for a considerable distance. These drainage channels reach across property lines and through them oil and gas is drawn from all surrounding territory in the pool. Under conditions existing in the Joiner Pool where the surface is divided into innumerable, small, separately owned tracts carrying as many separate interests in the oil deposit, a single well if permitted to flow freely will drain an area many times larger than is warranted by the surface area on which the well is drilled, unless the owners of wells on adjoining tracts are permitted to utilize an equal proportion of the gas and gas pressure in the recovery of oil from such adjoining tract.

"The wells drilled by the defendants penetrate and draw from the same reservoir of oil and gas as that penetrated and drawn from the plaintiff's wells. Other wells of plaintiff and defendants which are now being drilled will likewise penetrate and draw from this same reservoir and will be dependent upon the same gas pressure for the propulsion of the oil from its original habitat to the surface."

Charges Open Production

Then plaintiff proceeds to complain that the various defendants "willfully, knowingly, lawfully and maliciously opened said well (or wells) and allowed it (or them) to flow freely to its (or their) full capacity without regard to the right of the plaintiff to have said well (or wells) so separated that the gas pressure and water pressure in the common pool may be utilized advantageously for the benefit of the plaintiff and others of the common owners of the said pool to the end that the greatest possible quantity of oil may be recovered, etc."

Powers Under the Law

Continuing, the briefs set forth: "The Legislature of Texas has empowered the Railroad Commission of Texas to promulgate rules and regulations for the drilling and operation of oil and gas wells. Article 6,023, Vernon's Annotated Statutes of Texas, provides:

"'Jurisdiction. Power and authority are hereby conferred upon the Railroad Commission of Texas, over all common carrier pipe lines conveying oil or gas in Texas, and over all oil and gas wells in Texas, and over all persons, associations or corporations owning or operating pipe lines in Texas, and over all persons, associations and corporations owning or engaged in drilling or operating oil or gas wells in Texas; and all such persons, associations and corporations and their pipe lines, oil and gas wells are subject to the jurisdiction conferred by law upon the commission, and the commission is authorized and empowered to make all necessary rules and regulations for the government and regulation of such persons, associations and corporations and their operations, and the Attorney General shall enforce the provisions of this title by injunction or other adequate remedy and as otherwise provided by law. The word "commission" as used in this title, shall mean the Railroad Commission of Texas. The word "commissioner" shall mean any member of the Railroad Commission.'

"Article 6,029, Vernon's Annotated Statutes of Texas, provides:

"'Rules and Regulations. The commission shall make and enforce rules and regulations for the conservation of oil and gas:

"'1. To prevent the waste of oil and gas in drilling and producing operations and in the storage, piping and distribution thereof.

"'2. To require dry or abandoned wells to be plugged in such way as to confine oil, gas and water in the strata in which they are found and to prevent them from escaping into other strata.

"'3. For the drilling of wells and preserving a record thereof.

"'4. To require such wells to be drilled in such manner as to prevent injury to the adjoining property.

"'5. To prevent oil and gas and water from escaping from the strata in which they are found into other strata.

"'6. To establish rules and regulations for shooting wells and for separating oil from gas.

"'7. To require records to be kept and reports made by oil and gas drillers, operators and pipe line companies and by its inspectors.

"'8. It shall do all things necessary for the conservation of oil and gas whether here especially enumerated or not, and shall establish such other rules and regulations as will be necessary to carry into effect this law and to conserve the oil and gas resources of the State.'

"Article 6,042, Vernon's Annotated Statutes of Texas, provides:

"'Powers Not Limited. Particular powers herein granted to the commission shall not be construed to limit the general powers conferred by law, and until set aside or vacated by some order or decree of a court of competent jurisdiction, all orders of the commission as to any matter within its jurisdiction shall be accepted as prima facie evidence of their validity.'

Commission's Order

"The Railroad Commission of Texas made and entered on April 29, 1931, a special order canceling special order of April 22, 1931, and amending special order of April 4, 1931, establishing field rules for the conservation and prevention of waste of oil in its production and the prevention of discrimination in its purchase in the East Texas district, including Upshur, Gregg, Rusk and Smith Counties, Texas. A true and correct copy of said special order is hereto attached, marked Exhibit B, and made a part hereof.

"On information and belief, all producers operating in the East Texas district received a copy of said special order. Said order provides, inter alia, that the allowable production for the Kilgore area, in which the Turman and Luling leases are located, shall be 60,000 bbls. daily during the period from May 1, 1931, to July 1, 1931. (And for the Joiner area where the Turman and Linn-Tayloe Oil Co. and others' leases are located, 65,000 bbls. per day during the period from May 1, 1931, to July 1, 1931.) The allowable production in the Kilgore Pool is subject to increase for wells entering production after the beginning of the proration period, according to Rule 5 of said order."

Plaintiff then sets forth the volume of production its leases in the two pools were allowed to produce, and says that the Turman Oil Co. has at all times strictly adhered to the rules, regulations and orders of the Railroad Commission and that at no time since the order was made has it exceeded its allowable production, and that in the operation of its wells has exercised every precaution to conserve the gas pressure and prevent the waste of oil and gas.

Plaintiff gives what it claims to be the allowable production of the leases of the various defendants and that they "deliberately and maliciously" violated said order by opening their wells far in excess of the allowable production to the damage of plaintiff's properties.

In the case against the Luling Oil Co it is further charged that the defendant company "crowded the line" by locating a well 102 feet from plaintiff's line, whereas the Railroad Commission's ruling is that wells must not be located closer than 150 feet from the property line without special permission, which plaintiff claims defendant did not obtain.

The outcome of these suits will be watched with great interest by oil men everywhere. These are the first suits brought by one producer against an offsetting producer for alleged violation of proration rules in a curtailed or prorated field since the institution of the proration movement several years ago in Oklahoma.

J. E. CHICK DIES

Report from Glasgow, Ky., is that J. E. Chick, 36, superintendent of the Paragon Pipe Line Co. at that place, was found dead at the loading station of the company near the Glasgow depot. Physicians believe he had been dead six or eight hours. The cause of his death is unknown. Chick succeeded E. E. Harpst, who died suddenly at Glasgow a few months ago.

Oklahoma Production Kept On Level

Operators in Old Fields Decide to Keep Wells on Production. Oklahoma City Leases Show Big Total Production

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Oklahoma's daily average production is being held at an approximate level. The production for the week ending June 20 was 557,200 bbls. a day compared to 557,065 bbls. a day the previous week.

The Oklahoma City Field now has a total of 796 completed wells with an estimated potential of over 8,000,000 bbls. in 24 hours, based on individual four-hour gauges. The Empire Oil & Refining Co. announced it would increase its shipments from the field approximately 20,000 bbls. a day. The company has been shipping about 30,000 bbls. a day and will increase the shipments to approximately 50,000 bbls. a day at once. The general belief is that the crude oil purchasing companies with pipe lines into the Oklahoma City Field are finding it attractive to purchase oil at the present low prices, but some are finding it necessary to draw on storage to fill their requirements.

Osages Win First Round

The Osage Indians won a victory in Federal Court when Federal District Judge F. E. Kennamer, granted a temporary injunction to restrain holders of surface rights to Osage Indian lands from interfering with governmental administration of mineral rights and dismissed suits brought by the Osage Home Owners Association. Counsel said the association woul appeal.

Judge Kennamer said he did not think the surface purchasers have any equity in the mineral rights and that the title to these rights is still in the hands of the Government. The association, representing the surface right holders, contends that a congressional act extending the reservations of mineral rights to the Osage tribe as a whole until 1958 was invalid and that the reservations expired at the end of the 25-year period, last April. The judge further said the controversy is a matter of law and that he did not intend to hold that Congress is without power to legislate regarding the Osage Indians. The land belongs to the Osage tribe and is held in trust by the Government. The surface rights were alloted to the Indians while the Government still retained title to the minerals and administered them for 25 years. The Government saw that the mineral supply would not be exhausted within the 25 years of the first trust period and then acting under its powers it extended the trust period to 1958.

The recent ruling of the Federal Court at Guthrie, temporarily restraining the State from penalizing the properties of the Champlin Oil & Refining Co. for alleged violation of proration law in the Oklahoma City field did not disturb the curtailment of production in the pool.

Will Continue to Pump

A meeting of operators with production in the northeastern part of the State was held during the week together with representatives of the major oil companies to discuss the move to shut down the stripper wells in that area. All but one of the operators voted to continue to pump all of the wells in the area. It was brought out at the meeting that if some of the leases in the district were shut down water would ruin the wells and cause them to be abandoned. Many expressed the opinion that the lifting charges were more than the oil was bringing, but it is hoped that the market prices for crude oil would be increased in the near future.

During the week Wirt Franklin and other Oklahoma City oil producers asked the Oklahoma Corporation Commission to omit the new potential gauges which were to be taken in the pool July 1. The petition said that opening the wells to take new potentials would cause a great oversupply of casinghead gasoline at the plants. No date has been announced for the hearing by the Corporation Commission.

Oklahoma City Developments

Tom Slick Oil Co. completed a pair of producers during the week. The company's No. 2 Wespaco, NW cor. SW SE Section 34-12-3w, in the north end of the field, made 7,292 bbls. of oil in four hours from the Wilcox sand at 6,243-6,527 feet. The gas was estimated at 48,000,000 feet a day. The other well was No. 5 Classen-Edwards, SW cor. SE SE Section 3-11-3w, made 9,634 bbls. of oil in 5½ hours from the Wilcox sand at 6,335-6,534 feet. The gas was estimated at 39,000,000 feet a day. Both of these wells were shut in for proration.

Indian Territory Illuminating Oil Co.'s No. 6 Pasadena Heights, SW cor. Section 14-11-3w, flowed 63 bbls. of oil in 50 minutes and was shut in. The oil was found in sand from a total depth of 6,603 feet.

Denver Producing & Refining Co.'s No. 1 King, NW cor. SW NW Section 3-11-3w, flowed 4,250 bbls. of oil in two and one-half hours from the sand at a total depth of 6,516 feet. The gas was estimated at 50,000,000 feet a day. The well flowed through a 3¾-inch choke with 200 pounds back pressure.

The Keene-Okla Oil Co.'s No. 1 Ohio, SE cor. NW SE Section 15-11-3w, on the west side of the field, was still fishing for a steel line at a total depth of 5,700 feet. Gas and oil is showing through the mud in the hole. The total depth of the well is 6,478 feet in sand. The owners expect to make a production test of the well before drilling deeper. It has been fishing for several weeks and did not show for a well when first tested.

Champlin Oil & Refining Co.'s No. 1 Eckroat, NE cor. SW NW Section 10-11-3w, was cleaned out and was estimated to be a 40,000-bbl. well without being tested. The sand was found from 6,410-6,510 feet.

Phillips Petroleum Co.'s No. 2 Highland, SW cor. NE Section 10-11-3w, in the northwest part of the field, was completed for an average of 1,650 bbls. an hour from the Wilcox sand at total depth of 6,463 feet.

A survey of the Oklahoma City Field shows that 12 leases have each produced over 1,000,000 bbls. of crude oil up to June 1. The Cromwell-Franklin Oil Co.'s Trosper Park lease produced 2,841,480 bbls. of oil from 34 wells and shows the largest recovery in the Oklahoma City Field. Wirt Franklin Petroleum Corp.'s Lowery lease with 10 wells shows a recovery of 2,740,325 bbls. of oil. One of the wells, No. 2 Lowery, has produced 1,087,190 bbls.

Indian Territory Illuminating Oil Co.'s Mable Fuzzell lease with three wells has a total of 1,294,950 bbls. No. 1 has produced 1,262,075 bbls. of this oil. The company's discovery well produced 1,036,778 bbls., but is now dead. The company's Mary Sudik lease with 11 wells has produced 1,236,538 bbls. The Trosper lease with 11 wells shows a total of 1,319,885 bbls.

Coline Oil Co.'s Olds lease with 11 wells has a total recovery of 1,789,345 bbls. up to June 1. Same company's Warren lease with nine wells had a total of 1,237,786 bbls. Mid-Kansas Oil & Gas Co.'s Fortson lease with five wells had a total of 1,125,106 bbls. Prairie Oil & Gas Co.'s Hiddleston lease with nine wells, 1,587,000 bbls. Sinclair Oil & Gas Co.'s School Land Lease-54 with 16 wells produced 1,767,225 bbls. Same company's Vencl lease with 16 wells, 1,869,850 bbls.

All of the oil has been produced under proration with the exception of the first few months after the field was discovered. Some estimate that 25 per cent of the total amount of the oil in the Oklahoma City Field has been recovered. If one-fourth of the oil has been recovered the total recovery of the field will be around 240,000,000 bbls. The field has been producing two and one-half years.

During the week one of the new wells blew wild for a short time and blew oil for more than a half mile before it was brought under control and shut in. Rajah, Inc.'s No. 1 Davis, SW cor. NW NW, Section 2-11-3w, in the north part of the field near the Oklahoma City limits, blew wild when the rotary mud became thin. It was shut in without any damage. The test was opened to resume drilling operations after being shut in for more than a month. The sand was topped at 6,242 feet and the total depth was 6,256 feet. Fires were ordered put out in all residences near the well and in a railroad roundhouse nearby. The gas blew the drill stem out of the hole and also a considerable quantity of mud. The well is located about 1¼ miles from the business district of the city.

In Western Oklahoma

In Washita County the Carter Oil Co. has leased considerable acreage during the past year. Recently it leased acreage in Sections 13-10-18w and 18-10-17w, north of the townsite of Cordell.

Oil companies are still working on the reduction of rentals in the western part of the State. Major County, which is without any oil production, has been affected and oil companies are getting extensions on leases from the landowners. These extensions are from two to five years.

The new Wilcox sand well in Noble County has been pinched to 600 bbls. a day. Magnolia Petroleum Co.'s No. 2 Young, SE cor. SW NW Section 22-21-2w, which was recently completed for 784 bbls. of oil a day from the Wilcox sand, has pinched to 600 bbls. a day. It is the second well in the area to produce from the Wilcox sand and many believe it will start new activity in the district.

Other tests in the county are Sinclair Oil & Gas Co.'s No. 2 Waltermire, SE

OIL INDUSTRY LOSES CONSTRUCTIVE LEADER IN DEATH OF HENRY McGRAW

Henry McGraw, vice president of the Gypsy Oil Co., and the Gulf Pipe Line Co. of Oklahoma, died Friday, June 19, in Johns Hopkins Hospital in Baltimore, Md. Mr. McGraw had undergone an operation but pneumonia developed, and was given as the immediate cause of his death.

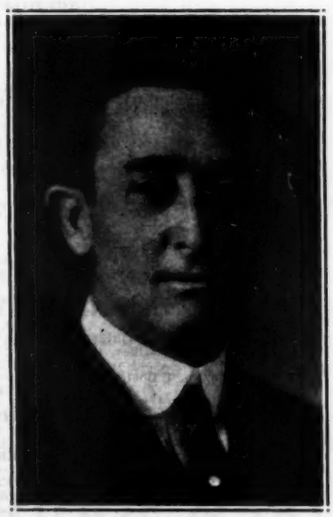
Surviving Mr. McGraw are one brother, T. F. McGraw, of Newkirk, Okla.; and four sisters, Mrs. Frank Jamieson of Tulsa; Mrs. John Hermes, Mrs. Dan Donahoe and Mrs. Robert Jamieson of Ponca City. Joseph E. McGraw, Tulsa oil man, is a nephew of the deceased. Mr. McGraw was unmarried and made his home with his sister, Mr. Frank Jamieson in Tulsa.

Funeral services were held Tuesday, June 23, in Ponca City, Okla., boyhood home of deceased. Services were conducted by the Rev. Peter Kamp in St. Marys Catholic Church, Monsignor J. F. McGuire, rector of Holy Family Cathedral in Tulsa, delivering the funeral oration. The services were very largely attended, oil men from far distant cities joining their Kansas and Oklahoma brethren in paying their last tribute to the dead oil executive. The body was placed in the McGraw family mausoleum in Ponca City.

Henry McGraw was born in Leavenworth, Kans., May 19, 1877. He graduated from Kansas University, after which he attended the University of Oklahoma law school. Following his graduation from the latter institution and his admittance to the bar he opened a law office in Sapulpa, Okla., then an important oil center, and specialized in the law covering land and leasing. He did much work for the Gypsy Oil Co. during his several years of practice in Sapulpa, and was finally prevailed upon to join the Gypsy's law department, and for several years he devoted his time and talent to the legal and land departments of the company.

When Murray M. Doan resigned as vice president of the Gypsy Oil Co. in 1918 Mr. McGraw was elevated to that position, becoming vice president of both the Gypsy Oil Co. and the Gulf Pipe Line Co. of Oklahoma. While he did not bear the title, he was in fact general manager of the Gulf Oil Corp.'s interests in Kansas and Oklahoma and the Rocky Mountain Fields with wide powers of administration.

Under Mr. McGraw's management the company expanded both in production and



Henry McGraw

valuable lease holdings and was at all times a powerful influence in oil affairs in the two states.

Among oil men Henry McGraw was regarded with respect for his unusual ability and sound judgment. In every great movement looking to the betterment of the industry in Kansas and Oklahoma his opinion and counsel were sought and his advice carried great weight.

Henry McGraw was a tremendous

(Continued on Page 97)

cor. SW SE Section 33-21-1w, which is shut down at 50 feet. Magnolia Petroleum Co.'s No. 1 Hoffman, SW cor. SE SE Section 16-21-2w, is being standardized at a total depth of 5,005 feet. Same company's No. 3 Sumner, SW cor. NW Section 4-20-1w, is rigging up.

Good Looking Block

The large block of acreage north of Guthrie in Logan County, consisting of four sections, is considered one of the best undeveloped areas in the county for possible oil production. Eighty per cent of the block is owned by the Shell Petroleum Corp. and the remainder by the Mid-Kansas Oil & Gas Co. and Ramsey Petroleum Co. and others. The geology has been worked and is considered favorable; the core drill also shows favorable indications, regional highs have been located by magnetometers and satisfactory work reported by the seismographs and other geophysical machines.

As soon as the oil industry returns to normal, a drilling campaign may be started in Logan County. The dimensions of Logan County Pools are narrow but the sands yield favorable quantities of oil and have been found to be prolific in the past.

The Shell Petroleum Corp. drilled the first big producer in Logan County, which produced 1,000,000 bbls. of oil the first year, and other wells in the same section were equally as large.

In Southern Oklahoma

Roy M. Johnson has a block of approximately 6,500 acres south of Graham, in Carter County. It is located in Sections 7, 8, 17, 18, 19, 28 and 30-3s-2w, and in Sections 1, 11 and 12-3s-3w. The leases have been taken for a term of 10 years. R. M. Johnson has recently assembled two other blocks of acreage and transferred them to the Carter Oil Co., one in northern Beckham County and the other in eastern Roger Mills County.

The east edge of Tatums Field in Carter County has been defined by a dry hole. Trevlyn Oil Co.'s No. 1 Ratliff, NE cor. NW SW, Section 19-1s-2w, is being abandoned as a dry hole at a total depth of 1,900 feet in shale.

South of the Tatums Pool, the semi-wildcat of F. Guoin and K. D. Oil Co., No. 1 Burton, C SW NW, Section 2-1s-2w, found oil showings at 2,178-91 feet in sand after drilling to a total depth of 2,214 feet and is shut down. Carter Oil Co.'s No. 2 Robb, SW cor. NW, Section 19-1s-2w, in the Tatums Pool, has cemented casing at 1,761 feet. The test logged sand at 1,768-1,898 feet with a show of oil and was drilled to a total depth of 1,948 feet.

Northwest of the Tatums Field, Magnolia Petroleum Co.'s No. 1 Wirt Franklin, SW cor. NW NE, Section 15-1s-3w, found broken sand at 2,505-41 feet with a showing of oil and has cemented casing at 2,490 feet.

In Stephens County the Wirt Franklin Petroleum Co. has surrendered leases in the Palacine Field. The location of the surrendered leases in the area was in Sections 5, 6, 10, 15 and 33-2s-6w.

Magnolia Petroleum Co. is reducing rentals in the territory south of Duncan in Stephens County.

In the western part of the State in Blaine County rentals are being reduced to 50 cents an acre which is the prevailing price. It is estimated about half of the land in the county is under lease. The different oil companies with blocks of acreage in the county have all reduced rentals. Indian Territory Illuminating Oil Co., Sinclair Oil & Gas Co. and Magnolia Petroleum Co. all have blocks in the county.

Production by Companies

The total recovery of oil from the Oklahoma City Field since its discovery December 4, 1928, to June 1, 1931, is approximately 60,614,033 bbls. At that time there were 790 producing wells of which 13 were dead or off production. A survey of the field shows that 15 companies produced 52,145,448 bbls. of this oil. A list of the producing companies and total recovery in barrels is as follows:

Company—	Bbls.
Indian Terr. Ill. Oil Co.	22,409,045
Tom Slick Oil Co.	5,373,172
Sinclair Oil & Gas Co.	4,819,745
Wirt Franklin Petroleum Corp.	3,982,879
Coline Oil Co.	3,471,285
Cromwell-Franklin Oil Co.	3,154,479
Phillips Petroleum Co.	2,696,000
Skelly Oil Co.	1,980,600
Prairie Oil & Gas Co.	1,805,109
Mid-Kansas Oil & Gas Co.	1,656,418
J. C. Shaffer	1,285,663
British-American Oil Co.	1,251,405
Shell Petroleum Corp.	996,191
Anderson-Prichard Pet. Corp.	790,200
Sunray Oil Co.	407,845
Century Petroleum Corp.	390,443
John Mabee et al	351,535
Chatham Oil Co.	327,161
Oils, Inc.	307,980
Continental Oil Co.	297,425
Denver Prod. & Ref. Co.	290,425
Minnehoma Oil Co.	255,531
Reynolds & Unruh	164,930
Morgan Petroleum Co.	141,235
Jones Brothers	138,670
Dengali Oil & Gas Co.	150,261
Acme Oil & Gas Co.	120,385
Donleon Oil Co.	119,715
Addition Petroleum Corp.	43,420
Blackstock Oil & Gas Co.	38,305
Blackwell Oil & Gas Co.	103,470
Capitol Prod. & Ref. Co.	103,575
California Operating Co.	9,015
Champlin Oil & Refining Co.	109,300
Courter Oil Co.	5,553
Eason Oil Co.	44,045
Empire Oil & Ref. Co.	43,895
Franco-Dominion Oil Co.	6,314
Government Petroleum Co.	440
Hall & Briscoe, Inc.	313,765
Johnson-Dabney et al	15,158
Julian Oil & Royalty Co.	57,196
Kedberg Oil Co.	29,995
Marco Oil & Refining Co.	47,765
Mid-Texas Petroleum Co.	89,123
R. A. McArthur et al	96,938
Plains Petroleum Corp.	48,046
Russell Petroleum Co.	90,670
Scott & Co.	16,300
Watchorn Oil & Gas Co.	7,825
Westgate Oil & Gas Co.	56,690
Wilcox Oil & Gas Co.	37,234
Wrightsman Petroleum Co.	74,265
Total	60,614,033

Greater Seminole Production

The production from the Greater Seminole area for the week ending June 20, was approximately 186,154 bbls. The first 12 pools listed below comprise the Seminole area which averaged 133,430 bbls.

Pool—	Bbls.
Little River	24,465
East Little River	5,415
Carr City	13,665
Maud	2,485
Mission	9,195
Bowlegs	15,245
Earlsboro	18,035
South Earlsboro	4,665
East Earlsboro	18,950
Seminole	14,930
East Seminole	1,705
Searight	4,685
Total	133,430
Allen	11,598
Asher	661
Wanette	6,015
Konawa	9,435
Sasakwa	2,305
St. Louis-Pearson	22,710
Grand total	186,154

Oklahoma City Shipments

The total shipments from the Oklahoma City Field for the week ending June 20 were 1,272,835 bbls. including tank cars, an increase of approximately 132,750 bbls. over the previous week. The shipments by companies were as follows:

Company—	Bbls.
Champlin	1,205
Continental	59,350
Empire	211,696
Magnolia	18,970
Oklahoma	66,398
Operators	20,940
Prairie	6,250
Shell	81,239
Sinclair	332,213
Stanolind	336,282
Tidal	7,617
I.T.I.O.	45,928
Crude Oil P. L.	4,324
Anderson-Prichard	1,886
Petroleum P. L.	4,348
Century	8,806
Peacock & Peveto	1,547
Wilcox	12,195
Capitol P. L.	13,675
Total	1,221,194

The daily production and pipe line shipments from the Oklahoma City Field for the week ending June 20 were as follows:

Date—	Production (bbls.)	Wells	Shipments (bbls.)
June 14	164,262	93	156,211
June 15	108,137	79	160,955
June 16	158,568	97	173,579
June 17	215,551	121	173,287
June 18	178,356	102	189,347
June 19	179,792	93	184,925
June 20	125,467	89	195,099

Atoka County

T. J. Campbell and others moved a machine in for No. 1 Baird, NW cor. NE SW, Section 31-1-13. Sam Moyen and others' No. 1 Miller, SW cor. NE NW, Section 26-1-14, is drilling at 280 feet.

Creek County

Burton & Holmes' No. 1-A V. Barnett, NE cor. NW, Section 7-19-10, is rigging up. Murta, Sherry and Carter Oil Co.'s No. 5 Wilson, SE cor. NE NW, Section 32-17-12, has been completed for 3,000,000 feet of gas in sand 1,590-1,602 feet.

Coal County

L. E. Stewart and others' No. 1 May Howard, NW cor. SE NW, Section 6-4s-11, is drilling at 1,300 feet.

Hughes County

Blackwell Oil & Gas Co.'s No. 1 Holmes, SW cor. NE SW, Section 9-7-8, had sand 2,923-70 feet total depth and flowed 85 bbls. in 12 hours but has been completed for 48,000,000 feet of gas.

Lincoln County

Magnolia Petroleum Co.'s No. 1 Tillford, SW cor. SE, Section 7-14-4, made 2,504 bbls. from Wilcox sand 4,965-80 feet.

Muskogee County

F. L. Beam's No. 1, Lot 14, Block 57, Muskogee Townsite, SE cor. SW NE SW, Section 27-15-18, is rigging up.

Oklahoma County

Hudspeth Oil Co.'s No. 1 Reinhart & Donovan, SW cor. NE NW, Section 3-11-3w, Oklahoma City Field, made 19,735 bbls. in eight hours from Wilcox sand topped at 6,329 feet, total depth 6,490 feet. Don Leon Oil Co. and others' No. 1 Burt, SW cor. NE NW NW, Section 10-11-3w, flowed 6,001 bbls. in 3½ hours from Wilcox sand topped at 6,375 feet, total depth 6,537 feet. T. B. Slick estate's No. 1 Burroughs, SW cor. NE NW, Section 10-11-3w, has been completed for 6,594 bbls. in four hours from Wilcox sand topped at 6,370 feet, total depth 6,541 feet. H. F. Wilcox Oil & Gas Co., H. H. Patton and Hubbard's No. 1 Haynes, SW cor. NE NW SW, Section 10-11-3w, topped Wilcox sand at 6,441 feet, drilled to 6,540 feet and made 2,971 bbls. in four hours. Cromwell-Franklin Oil Co.'s No. 28 Trosper Park, NE cor. NW NW, Section 13-11-3w, has been completed for 90,000,000 feet of gas in sand 6,258-6,309 feet.

Cleveland County

Continental Oil Co.'s No. 2 Sudik, NE cor. NW NE, Section 6-10-2w, is dry and abandoned at 6,775 feet.

Okmulgee County

D. M. Logan moved a machine in for No. 2 Pigeon, SE cor. NE NE, Section 31-15-13. O. A. Stosburg's No. 1 Nicholas, NW cor. SW NW, Section 30-13-12, has been abandoned at 800 feet.

Pittsburg County

Choctaw Gas Co.'s No. 2 Lovier, NW cor. SE NE, Section 8-7-18, is rigging up.

Pontotoc County

Stanolind Oil & Gas Co. is erecting the rig for No. 1 Burke "D," NW cor. SE, Section 32-5-5, Bebee Field. Rig material is on the location for No. 2 Roberts, NE cor. SW NE, Section 32-5-5.

Pottawatomie County

Droppleman Drilling Co.'s No. 1 Jones, SE cor. NW, Section 21-8-3, is dry and abandoned at 4,878 feet.

Seminole County

Empire Oil & Refining Co.'s No. 1 Jackson, C SW SW, Section 17-7-8, is dry and abandoned at 3,322 feet. Magnolia Petroleum Co.'s No. 4 Wood, NW cor. NE SW, Section 29-6-6, Konawa Pool, has been completed for 485 bbls. in Cromwell sand 2,755-85 feet.

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	Shut down 5,502 ft.

ATOKA COUNTY

Campbell's No. 1 Baird, NW NE SW Sec. 31-1-13	Rig.
Moyer et al's No. 2 Miller, SW NE NW Sec. 26-1-14	Drlg. 130 ft.
Edgerton Edwards' No. 2 Rowland, SE NE NW Sec. 6-1-15	Rig.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w	T. D. 2,344 ft.; plugged back to 1,890-1,900 ft.; 1,500,000 ft. gas completed.
Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w	Waiting on cement to set 430 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW Sec. 17-2-23w	Shut down 2,550 ft.
White et al's No. 1 Green, SW cor. Sec. 34-10-24w	Shut down 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	Shut down 5,115 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w	Shut down 1,115 ft.

COAL COUNTY

McGraw Oil Co.'s No. 1 Ward, NE SE Sec. 35-1-8	Shut down 1,300 ft.
Whitney et al's No. 1 Miller, SE NE Sec. 10-2-8	Shut down 760 ft.

COMANCHE COUNTY

G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w	Shut down 1,450 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w	Shut down 5,850 ft.

GARVIN COUNTY

Malarnee et al's No. 1 Phillips, NE SW SE Sec. 24-2-2w	Drlg. 4,115 ft.
Skinner's No. 1 Elrod, SW cor. Sec. 13-2-3	Shut down 1,120 ft.

GREER COUNTY

French's No. 1 Murphy, SW NW Sec. 23-7-21w	Shut down 1,645 ft.

HARPER COUNTY

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w	20,000,000 ft. gas 5,350-5,400 ft.; total depth 8,539 ft.; shut down; sprayed 50 bbls. gasoline.

HASKELL COUNTY

Holden et al's No. 1 Ellis, CWL NW NE Sec. 1-9-18	Spudding.
Bowers Oil & Gas Co.'s No. 1 Black, Kent Townsite, SE SW SW Sec. 31-8-20	Drlg. 315 ft.
Ault et al's No. 1 Harrison, CWL SE NE Sec. 14-9-19	Shut down 650 ft.
Ault et al's No. 1 Hall, NW SW SW Sec. 14-9-19	Shut down 2,000 ft.
Ault et al's No. 1 Hall, SE NW Sec. 25-9-19	Shut down 200 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e	Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW Sec. 10-9-18e	Shut down 2,337 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW Sec. 15-5-11	Shut down 1,645 ft.

KAY COUNTY

Wilwright Gas Co.'s No. 1 Wildegrube, NE SW Sec. 14-27-1	Shut down 4,055 ft.; csg. collapsed, will abandon.
Lewis et al's No. 1 Harris, SE NW Sec. 14-25-1	Location.

(Production on Page 94)

RUMANIAN OUTPUT

NEW YORK, June 20. — Production of crude petroleum in Rumania during April amounted to 535,000 tons, compared with 550,000 tons during the preceding month and 510,000 tons in April of last year. Concordia was the leading producer, with 74,739 tons, other principal producers being as follows: Astra Romana, 72,974 tons; Steaua Romana, 68,729 tons; Phoenix Oil, 67,936 tons; and Romano-Americana, 64,117 tons.

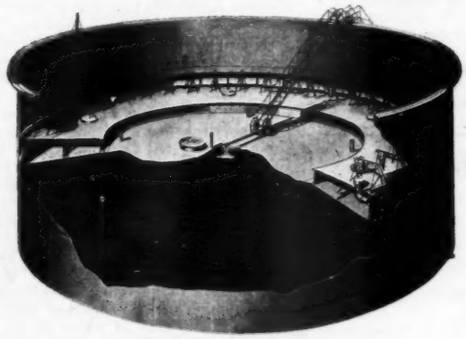
TEST IN CHILE

NEW YORK, June 22.—Chilean government petroleum experts are drilling a test well in the Tres Puentes district of southern Chile, and expect to bring in a favorable showing of oil below the 4,000-foot level. Oil and gas showings in the Tres Puentes district have been promising, it is stated, and the government has contracted with several foreign firms for geophysical surveys of various districts in Chile.

Right: Group of tanks equipped with Wiggins Pontoon Roofs. The five tanks in the foreground are 30 feet in diameter by 15 feet high.

Below: Close-up view of a Wiggins Pontoon Roof on a gasoline tank.

Added Efficiency in Reducing Working Tank Losses



Features of the Wiggins Pontoon Roof—

—Non-sinkable. Built with a continuous ring of pontoons around the outer edge, with separating bulkheads.

—Heavy plate construction. Use of heavy plates adds to the life of the roof. Regular riveted or welded joints with no gaskets.

—Insulation. The annular gas space in the seal, and the oil around it, are insulated by the pontoons.

—The seal. The seal used is the standard Wiggins seal, with long sliding contact, which has proved so effective in years of service.

Development of the Wiggins Pontoon Roof has brought to the oil industry still greater protection against evaporation, fire and corrosion for working tanks. Already widely adopted, this improved roof combines the best features of the Wiggins Floating Roof and of other pontoon designs into one finished structure.

The annular ring of pontoons on the new roof performs a double duty in stopping evaporation losses. It insulates and reduces the temperature of the liquid and gas space in the standard Wiggins seal, thus increasing its efficiency. Further, it reduces the tendency of the tank's contents to boil in hot weather.

The Pontoon Roof floats on the surface of the oil at all levels, and seals the tank against filling and breathing losses. Since the roof is in contact with the liquid, air is excluded, reducing fire hazards and corrosion by preventing the formation of inflammable and corrosive vapors.

Wiggins Pontoon Roofs on working tanks pay for themselves in a few months through evaporation savings alone. The protection they afford against fire and corrosion is clean gain. They can, of course, be installed on existing tanks as well as new ones.

Our nearest office will be glad to supply evaporation and fire data, and submit cost estimates on Wiggins Pontoon Roofs.

STOP FIRE AND EVAPORATION – CUT CORROSION LOSSES

CHICAGO BRIDGE & IRON WORKS

Dallas	1241 Burt Bldg.	Detroit	1514 Lafayette Bldg.	Boston	1517 Consolidated Gas Bldg.
Houston	1119 Electric Bldg.	Cleveland	2204 Midland Bank Bldg.	San Francisco	1054 Rialto Bldg.
Tulsa	2406 Exchange Bank Bldg.	New York	3147 Hudson Terminal Bldg.	Seattle	4323 Smith Tower
Birmingham	1536 Fiftieth St., N.	Philadelphia	2615—1616 Walnut St. Bldg.	Havana, Cuba	Apartado 2507
Chicago	2128 Old Colony Bldg.	Los Angeles	1323 Subway Terminal Bldg.	Cable Address	CHIBRIDGE

WIGGINS ROOFS

OGJ 6-25 Gray

Kansas Produces Half of Potential

New Fields Increase State's Possible Output to 200,000 Bbls. Advisory Committee Begins Work. New Pipe Line

By W. A. Spinney
Staff Correspondent, Kansas Fields

Actual production from the State of Kansas continues to decline at a steady rate. The estimated production for the State for the week ending June 20 was 100,800 bbls. a day and it is the lowest the State has produced in any week during the year.

The Kansas Public Service Commission held its first meeting with members of the oil advisory committee and the state attorney general June 17, relative to the oil proration law enacted by the 1931 legislature. The members present were Marvin Lee, Lee Scott and Rex Kent. The other members, N. K. Moody and Ralph Pryor, were out of the State.

It was agreed at the conference that the Public Service Commission would not issue violent orders to disturb the oil industry but would lend a helping hand when the State's advisory committee was unable to reach an agreement. The oil men of the State are left to work out their own problems if possible.

The State's advisory committee will hold a meeting with operators of the Ritz-Canton Pool, June 24, in Wichita. At the meeting the advisory committee and the operators will consider what policy will be adopted.

The meeting at Topeka was the first the oil advisory committee had had with the Public Service Commission. It was said the commission advised the committee that as far as possible it wished the committee to work out all proration problems in a friendly way and to make their recommendations only after they had given the operators in each pool in the State an opportunity to be heard. Another policy of the commission and of the committee is to be that they would interfere as little as possible with the business of the oil operators.

Interpretations to be given the new law, enacted by the legislature last winter and which went into effect May 28, 1931, were discussed informally by the commission, the advisory committee and the State's attorney general.

In addition to discussing the announced policy of the commission the advisory committee will discuss with the operators the taking of new potential tests in the Ritz-Canton area, as no gauges have been taken since April 1. An effort will be made to obtain a uniform method of taking these potential tests.

The committee contemplates no changes in the proration program, but will consider minor items of importance to the oil operators, and should there be any complaints they will be discussed at the meeting. The advisory committee will then take its recommendations to the Public Service Commission for final action.

Nelson K. Moody, president of the Prairie Oil & Gas Co., notified the Public Service Commission he would be unable to serve on the advisory committee. No new appointment was made.

Pipe Line to Ritz-Canton

The closing of the contract for the construction work on the new White Eagle pipe line from the company's refinery at Augusta to the Ritz-Canton Pool will be announced this week and the actual construction work will start at once. The new pipe line will give an additional outlet to the large potential production in the Ritz-Canton area, now estimated at 100,000 bbls. a day, while the present market outlet is only 6 per cent of the potential production. The new line will be the first actual outlet offered the operators in the district which has only been developed approximately 10 per cent of its possibilities. What effect the new pipe line will have on the development of the drilling in the area is a matter of guesswork.

The actual survey has been started and the pipe line department of the White Eagle Oil & Refining Co. announced the line would run from the Ritz-Canton sector in a southerly direction to Valley Center, a point about 8 miles north of Wichita, and then would turn east to the company's tank farm, a point about 6 miles north of the Augusta refinery. Although no definite announcement has been made it is believed the company is considering another pipe line project by extending the new line when it is completed, at some later date to the west from the Ritz-Canton area to the production that has been found along the Ellsworth arch, in the western part of Rice County, northeastern Stafford County and southwestern Ellsworth County. It has been estimated that in the above mentioned area a potential daily production of approximately 40,000 bbls. is now shut in without any pipe line outlet.

Oil produced in Rooks County, Kansas, in the western part of the State, is bringing the highest price in the Mid-Continent area. Alyward, Seeley & Boyson's No. 1 in Section 21-8-19w, is making around 140 bbls. a day and is selling it for 55 cents a barrel. The premium of 18 cents a barrel is obtained, it is said, because of its exceptional lubricating qualities. The oil tests 42 degrees gravity.

Liggett and others' No. 1 Whitson, SW cor. NW SW Section 16-11-15w, in western Russell County, found a 45-bbl. showing of oil at 3,184-86 feet and were drilling deeper at 3,220 feet with no increase.

Kansas a Real Potential

Kansas has been a leader of proration measures and the fact is recognized by operators in other states. Producers have co-operated in the conservation of oil production and have restricted drilling operations in all the flush fields in the State and have kept flush pools shut in. It is estimated that only about 10 per cent of the proven locations in the Ritz-Canton Field have been developed owing to the voluntary proration under the unit plan which has been in operation in the field.

Some estimate the State has a potential of 200,000 bbls. a day with seven major areas shut in without any pipe line out. The State is producing approximately the same amount of oil it was two years ago.

Ritz-Canton Spreading

The Ritz-Canton Pool continues to spread to the west where wells are finding oil production. During the week two tests in the Decker gas area found oil. The proration umpire, Lloyd Pickrell, is planning to include the oil production which has been found in the Decker gas field in the unit plan of proration, now in effect in the Ritz-Canton area. The Decker gas field is located northwest of the oil production in the Ritz-Canton Field and many believe the two fields will connect when enough tests are completed. At the present time only a distance of a mile separates production in the two areas.

One test that found oil in the Decker gas field was McPherson Oil & Gas Co.'s No. 2 Griffin, C SW NW, Section 14-19-2w, the forty-third well completed in the Decker gas field. It was estimated to be a 1,000-bbl. well with an estimated 6,000,000 feet of gas a day. The oil and gas were found in the chat at 2,899-2,951 feet. The other test to find oil in the Decker gas area was Wolf Creek Oil Co. and others' No. 1 Dunsford, SE cor. SW, Section 23-19-2w. It was flowing 10 bbls. of oil an hour from the chat at 2,912-48 feet. The operators plan to allow the well to produce at the rate of 250 bbls. a day.

E. K. Carey and others' No. 1 Holt, C NW SE, Section 13-19-2w, on the east side of the Decker gas field, had a hole full of fluid and it was showing about 1,000,000 feet of gas from the chat at 2,915-45 feet.

Another new location was announced on the east side of the Ritz-Canton Field, a mile east of the nearest production. It is Foraker and Smith's No. 1 Hamilton, NW cor. SW, Section 28-19-1w. It will be the most easterly test in the pool at this time and will prove considerable territory if commercial production is found.

Several large gas wells have been added to the Hugoton gas field in the southwestern part of the State. The seasonal drilling campaign is expected to get under way in the near future and the interstate pipe lines which will supply midwestern cities with domestic gas are expected to be completed in the fall. These interstate gas systems will get part of their gas supply from the Hugoton gas field. Gas wells recently completed are Texas-Interstate Oil & Gas Co.'s No. 1 Loflin, in Section 1-33-38w, Stevens County, 4,000,000 feet a day; same company's No. 1 Crane, in Section 15-33-38w, Stevens County, 5,000,000 feet a day, and No. 1 Baldridges, in Section 10-35-39w, Stevens County, 11,000,000 feet of gas a day.

A new wildcat test was announced during the week north of Newton, Harvey County. Elm Oil Co. and others' No. 1 in Section 32-22-1, is expected to be started in a few days. The location is just north of Bethel College.

Derby Oil Co.'s No. 6 Eastborough, NE cor. SW NE, Section 19-27-2, in the Eastborough Pool, in Sedgwick County, will probably be drilled deeper in the chat horizon in an effort to increase its production. The well swabbed 150 bbls. of oil and 150 bbls. of water on its first production test. The chat was found from 2,987-89 feet.

In the new producing area in the northeast part of Reno County, Tom Palmer and others' No. 1 Goering, NW cor. SE, Section 1-23-4w, offsetting the first wells completed in the area, was standardizing after cementing the 8-inch casing at 3,301 feet.

A new company formed during the week to develop leases in the southern part of the Voshell Pool. The Ritz Oil & Gas Co. has been organized by Ivan Otstot, and is expected to make locations in Section 15-21-3w, on acreage farmed out by the Shell Petroleum Corp. One of the pieces of acreage is the S half NW, Section 15-21-3w, where a test will be drilled to test the Silicious lime horizon. in the SW cor. NW, Section 15-21-3w. the other test is No. 2 Koehn, SE cor. NE, Section 16-21-3w. The Amerada Petroleum Corp. and others recently completed a well in the NW cor. SW, Section 15-21-3w, which extended production in the field a quarter of a mile to the southeast, indicating that production may extend in that direction. It is believed that the producing area of the pool has been defined by dry holes in all other directions.

Greenwood Operations

In Greenwood County, Phillips Petroleum Co. and others' No. 1 Bual, SE cor. NE, Section 28-23-11, on the south side of the extension area of the Seeley

(Continued on Page 97)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Syndicate Oil Co.'s No. 1 Boertz, NW SE SE, Sec. 13-18-12w	Shut down 2,440 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE, Sec. 16-19-14w	Drlg. 3,300 ft.
McCool et al's No. 1 Tsern, NW SE NE, Sec. 12-20-11w	Shut down 1,600 ft.
CHASE COUNTY	
Borden et al's No. 1 Atkinson, NW SE, Sec. 18-18-7	Rig on ground.
Kline et al's No. 1 Elliston, C SE SE, Sec. 21-19-6	Completed 576-90 ft.; 1,000,000 ft. gas.
CLAY COUNTY	
Crystal Oil et al's No. 1 Tivier, SW cor., Sec. 19-8-2	Shut down 2,500 ft.
COFFEY COUNTY	
Heyburg's No. 1 Kroft, SE SW SE, Sec. 30-22-14	Shut down 1,565 ft.
COWLEY COUNTY	
Fisher et al's No. 1 Hurt, C SW SE SE, Sec. 11-34-3	Rig.
Roth & Faurot's No. 1 Reedy, SW NW NE, Sec. 3-32-8	Shut down 1,040 ft.
DICKINSON COUNTY	
Severs et al's No. 1 Lavengood, NE SW, Sec. 13-13-2	Shut down 2,850 ft.
ELLSWORTH COUNTY	
Hershey et al's No. 1 Schultz, C NE, Sec. 9-14-8w	Drlg. 2,910 ft.
Alyward et al's No. 1 Stratman, SE NW SE, Sec. 1-17-10w	Silicious 3,255-71 ft.; 117 bbls. 2 hrs.; shut in; est. 2,000 bbls.; no pipe line connection
Aladdin Pet.'s No. 1 Stoddenberg, C SW, Sec. 22-16-10w	Shut down 2,265 ft.
Milton et al's No. 1 Kester, SE NE, Sec. 6-14-9w	Drlg. 3,018 ft.
FORD COUNTY	
Carter Oil Co.'s No. 1 Everett, C NE, Sec. 22-29-21w	Drlg. 4,567 ft.
Swain et al's No. 1 Taylor, C NW, Sec. 21-25-24w	Shut down 5,105 ft.
GRAHAM COUNTY	
Schleimeyer et al's No. 1 Clark, SW NE NE, Sec. 11-9-25w	Drlg. 4,537 ft.
HARPER COUNTY	
Beeler et al's No. 1 Bear, C NE, Sec. 21-36-6w	Shut down 1,830 ft.
KINGMAN COUNTY	
Skelly Oil Co.'s No. 1 Miles, NE cor., Sec. 30-27-10w	1,635-40 ft. 2,000,000 ft. gas; at 2,095-20 ft. 6,000,000 ft. gas; at 2,133-42 ft. 3,000,000 ft. gas; showing oil 3,385 ft.; T. D. 3,441 ft.; Shut down; estimated at 600 bbls. a day.
LINCOLN COUNTY	
Buck et al's No. 1 Schulz, C SE NE SW, Sec. 19-11-6w	Rig on ground.
MARION COUNTY	
Midwell's No. 1 La Master, NW cor., Sec. 31-22-4	Shut down 650 ft.
MORTON COUNTY	
Hydraulic Oil Co.'s No. 1 State Land, NW SE, Sec. 22-34-43w	T. D. 3,640 ft.; shut down.
MORRIS COUNTY	
Un...hol et al's No. 1 Bersuch, NW SE NW, Sec. 19-17-7	Machine.
Hankerson et al's No. 1 Cessman, SW SE, Sec. 24-16-9	Drlg. 2,478 ft.
NESS COUNTY	
Gypsy Oil Co.'s No. 1 Coleman, C SW NE, Sec. 25-17-25w	Silicious lime 4,709-4,807 ft.; water; abnd.
NORTON COUNTY	
Richards et al's No. 1 Colby, Sec. 17-4-21w	Rig.

(Continued on Page 95)

BRIDGEPORT'S NEW POLICY

FOR DEALERS!

Bridgeport desires a wider outlet for its manufactured and exclusive products. Users of oil field tools and equipment are busy the world over and demand convenient service. We solicit inquiries from responsible supply dealers located anywhere. Profitable arrangement on consignment—or paid stock with return privilege.

A Message From
President A. A. Buschow

A LIBERAL AND FAIR CREDIT POLICY

Bridgeport's credit policy is right. Hundreds of users can testify that Bridgeport can and does carry out its promises. Bridgeport's terms are 60 Days regular, and 2% Discount is allowed on nearly all purchases if paid by 20th of following month. Arrangements can be made to carry accounts reasonable time until work is finished—or special longer terms on equipment purchases. *Bridgeport never re-discounts.* All notes and accounts are retained by the Company, and settlements handled direct. Bridgeport does not claim to be the largest organization in the world, but is one of the few which does properly take care of all your drilling requirements (Rotary and Cable) and many Production items. We invite your consideration.

BRIDGEPORT PRODUCTS

Offered by Dealers as Well as Bridgeport Stores

Bridgeport Rotary Reamers
" Rotary Drill Collars
" Rotary Subs
" Hychrome Drill Pipe Floats
" Forged Steel Adapters and Adapter Nuts
" Vickers Overshots
" Rotary Fishing Tools
" SWAN UNDERREAMERS (Regular and New Type)
" Cable Drilling Tools
" Cable Fishing Tools
" Straight Lift Pumping Hangers
" Regular Pumping Hangers

Moroil Shot Packed Pumps
Moroil Shot Packed Stuffing Boxes
Moroil Tubing Supports
Bridgeport Hychrome Casing Shoes
" Dependable Used Tools
" Dependable Used Casing
" Special Rental Service
Aquagel—Trouble-proof Drilling Mud
Baroid—Extra heavy Drilling Mud
Super-Wiccapee Rotary Hose
Triumph Belting
Wiccapee Stuffing Box Rings
Williamsport Drilling and Casing Lines (Rotary and Cable)

Our Branch Stores offer all of the above and distribute proven Standard makes of other Oil-field Equipment.

DEALERS EVERYWHERE

—can furnish you Bridgeport manufactured or exclusive products. Public transportation charges allowances are very liberal. Special arrangement on rentals giving you service and advantages equal to users in oil fields adjoining Bridgeport Branches. Wire or phone any Bridgeport Branch collect. Call or write for pamphlets fully describing Bridgeport Products.

BRIDGEPORT IS ONE OF THE FEW SUPPLY COMPANIES OFFERING EVERYTHING NEEDED FOR DRILLING WELLS. You gain by using Bridgeport Products.

WORLD WIDE SERVICE

Special attention given to shipments of Bridgeport Products in other countries than the United States. World Wide Representatives, Lucey Products Corp. 3505 Woolworth Building, New York, N. Y.

BRIDGEPORT MACHINE COMPANY
Wichita, Kansas

BRANCH STORES

Wichita, McPherson, Russell and El Dorado, Kansas; Oklahoma City and Seminole, Oklahoma; Pampa and Kilgore, Texas.

North Louisiana Has Six Completions

Four Oil Producers and Two Gas Wells, Widely Scattered. Six Dry Holes in Three States. New Mississippi Test

By J. R. Crumpton

SHREVEPORT, La., June 22.—North Louisiana furnished all of the successful completions in this division during the past week, registering 4 producing wells and 2 gas wells. All of the producers were in widely scattered parts of the Zwolle chalk rock field in Sabine Parish. The Stovall Drilling Co.'s No. 1 Nulton, Section 1-7-13, continues to be the outstanding well recently completed in this field, having gauged during the week 1,000 bbls. daily through 2-inch tubing from a total depth of 2,357 feet. The new well is the second producer of a recently opened southwest extension, 1 mile from Zwolle townsite. This new proven area is fully 12 miles west of the eastern or Many extension in Section 1-7-11. The latter section furnished two of the producers with the completion of Lyons and Neely's No. 2 Byrd, flowing 70 bbls. daily from 2,480 feet, and Eddie Self's No. 1 Jacobs, making 30 bbls. from 2,472 feet. The other successful completion, about midway between the eastern and western extremes, was H. W. Perritt's No. 1 Boring, Section 11-7-12, pumping 40 bbls. daily from 2,602 feet.

Richland Parish, after a week's absence from the successful list, came through with two good wells from that prolific gas area. The Hope Production Co. completed its No. 3 Noble, Section 1-15-5, gauging 37,116,000 feet of gas with 925 pounds rock pressure from 2,450 feet. The Southern Carbon Co.'s No. 2 Rosengrant & Ducomb, Section 19-17-6, found the pay at the same depth, but not as good a well, gauging only 7,653,000 feet and 890 pounds pressure.

Dry Holes in Zwolle

Of the six dry holes reported from three states, four were in the Zwolle Field, serving to offset the producers, and proving a great disappointment to the operators involved as all of the tests, with possibly one exception, were in the proven areas in close proximity to production. The new eastern extension of this field in Section 1-7-11, which has been consistently successful, registered its first dry hole with the completion of George Pipes' No. 1 Byrd at 2,610 feet. W. M. Coates, 2 miles southeast, abandoned his No. 1 McNeely, Section 14-7-11, at 2,630 feet, and in the northern part of the field, the Lacy Production Co.'s No. 1 Cooper, Section 30-8-11, was dry at 2,650 feet. The other failures, one in Marion County, East Texas, and the other in Washington County, Arkansas, have been shut down for several months and were junked without having reached the depth where pay would likely be encountered. The Marion County well was P. E. Hussy's No. 1 Trammell, Charles Lockhart Survey, abandoned at 1,884 feet, and the unsuccessful completion in Arkansas was H. H. Taylor's No. 1 Rummy, Section 1-13-29, abandoned at 1,702 feet. In addition to the dry holes, there were three abandoned locations, two in Caddo Parish and one in Ouachita Parish.

Smackover Deep Test

A deep test that is holding considerable interest in the Smackover Field, Union County, Arkansas, is the Lion Oil Refining Co.'s No. 9-A G. P. Hayes, in Section 4-16-15. Nine-inch heavy casing has been set in this well at 3,398 feet, after 5 feet of sand showing oil had been cored to 4,004 feet. The operators are arranging to drill plug and test the well at this depth, which if unsuccessful, will be carried to 5,000 feet. While there are at present four producing horizons in Smackover, the deepest of them is at the 2,600 to 2,700-foot level and great interest has been aroused in the deeper show. In the Urbana Field of Arkansas, Wilson & Chapman are drilling in gumbo at 2,750 feet on their No. 1 Atkins, Section 3-18-13. This well is an offset to their No. 1 Parker, same section, which was brought in a few weeks ago, flowing 250 bbls. daily from 3,565 feet. These operators are planning an intensive drilling campaign in this vicinity, having derricks up for two more tests and location made for another. There are only three wildcats that are active at present in Arkansas, as follows: Star Oil Co.'s No. 1 Cunningham, Section 11-5-16, Hot Springs County, has reached a depth of 1,227 feet. The well has previously been listed as John Watkins, operator, but was recently taken over by the present operators at 220 feet. In Lincoln County, Lawrence B. Cook is reaming at 1,477 feet on his No. 1 McGhee Planting Co., Section 5-8-7, the total depth being 2,000 feet. The other wildcat, in Pike County, is E. R. Henderson's No. 1 Lee, Section 31-8-23, which is drilling in hard rock at 860 feet.

Bienville Wildcat

Bienville Parish reports another wildcat test with the spudding in of the Arcadia Drilling Corp.'s No. 1 Atkins, Section 27-18-6. This test is about midway between the towns of Arcadia and Gibsland and in the immediate vicinity of another test drilled about a year ago and which showed considerable oil and gas. The well is on a structure that is highly regarded as potential producing territory by many operators. Andrews and Devlin's No. 1 Nattin, Section 15-22-14, in Bossier Parish, has not made any progress during the week due to operations being suspended while titles are being cleared before a test is made. The operators are enthusiastic over the chances of making a producer of the test, having cored 10 feet of sand from 2,872-82 feet.

Of the several other wildcats drilling in North Louisiana, none has yet reached the depths to be closely watched, and most of them are making slow progress. The Pelican Natural Gas Co., in Caddo Parish, is drilling in hard lime at 3,586 feet on its No. 1 Cooper, Section 29-18-14. This test is expected to go 5,500 feet unless pay is found at a lesser depth. In Claiborne Parish, the Leue Oil Co. has reached a depth of 3,000 feet on its No. 1 Kinder, Section 2-21-7, and E. T. Oakes, in DeSoto Parish, is coring constantly on his No. 1 Bryant, Section 30-13-15, the last core coming from a chalky shale formation at 1,898 feet. In Tensas Parish, Nick Barbare's No. 1 Mutual Realty Co., Section 36-11-9, is drilling at 840 feet, and the Gulf Refining Co., in Winn Parish, has set 12-inch casing at 940 feet in its No. 1-A Bodcaw Lumber Co., Section 4-10-5.

MISSISSIPPI

Mississippi is getting a good test in Clay County with the progress of Ohio Oil Co.'s No. 1 Cantrell, Section 16-15-5, which has reached a depth of 4,253 feet. The well is located on a block of some 25,000 acres assembled by this company and will be carried deeper than any test yet drilled in this State. Other drilling operations in Mississippi follows: Monroe County, Alpine and others' No. 1 Cowart, Section 2-12-19, drilled hard lime 2,565 feet; Noxubee County, Thompson & Donohue's No. 1 Donohue, Section 25-16-17, moving in rig; Warren County, Eagle Bend Oil Co.'s No. 1 Kiger, Section 9-18-2, repairing rig at 1,990 feet; Winston County, Mississippi Drilling Co.'s No. 1 Scarborough, Section 15-13-14, shut down at 3,310 feet, and Collett-Carter Oil Co., in Yalobusha County, is shut down repairing rig at 3,272 feet on its No. 2 Blackmere, Section 14-11-4.

A good barometer of the degree of curtailment of operations in North Louisiana is obtained from the records of the State Department of Conservation given out the latter part of this week. Permits were issued for the abandonment of 23 pumping wells in the various fields, distributed as follows: Cotton Valley 9, Bossier Parish 6, Caddo 2, Claiborne 1, DeSoto 4 and Red River 1. Only four new drilling operations were reported, three of which were in the proven Zwolle Field. The Caddo Levee Board, which owns fee acreage in the Hosston Field, Caddo Parish, has granted the Bayou

(Continued on Page 97)

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA
BOSSIER PARISH

Company, farm and location—	Remarks:
H. L. Morgan's No. 13-A Kendrick, 669 ft. E, 330 ft. S, NW cor. SE SE, Sec. 22-19-11	Set 6⅝-in. 1,715 ft; T.D. 1,727 ft.

CADDO PARISH—OIL CITY

Trio Corp.'s No. 1 Levee Board, 212 ft. S, 500 ft. E, NW cor., Sec. 17-20-15	1,320 ft. oil in hole 3,265 ft; waiting on standard rig.

CADDO PARISH—PINE ISLAND

J. T. McCormick's No. 1 C. B. Christian, 330 ft. S, 300 ft. W, NE cor. SW, Sec. 27-21-15	S.D. 1,335 ft.
Shreveport Oil Corp.'s No. 2-B Muslow, 1,000 ft. S, 300 ft. E, NW cor., Sec. 32-21-15	Arranging to set perforated csg. 2,135 ft.
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15	Set 10-in. 150 ft; S.D.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 300 ft. S, NE cor., Sec. 2-20-4	Location.

OUACHITA PARISH

Ark.-La. P. L. Co.'s No. 6 McInnery, 700 ft. N and E, SW cor. SW NW, Sec. 28-19-4e	Drlg. broken lime 2,107 ft.
Jordan Drlg. Co.'s No. 7 Cole, 345 ft. S, 1,469 ft. W, NE cor., Sec. 49, in Sec. 50-18-4	Location abd.
United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4	Location abd.

RICHLAND PARISH

Hope Prod. Co.'s No. 3 Noble, 2,040 ft. S, 2,607 ft. E, NW cor., Sec. 1-15-5e	37,116,000 ft. gas; T.D. 2,450 ft.
Pelican Nat. Gas Co.'s No. 2 Chapman, 660 ft. N and W, SE cor. SW, Sec. 14-16-6e	Drlg. 1,750 ft.
State Line O. & G. Co.'s No. 1-A Holdiness, 1,062 ft. E, 760 ft. N, SW cor., Sec. 10-16-6e	Drlg. 2,037 ft.
United Carbon Co.'s No. 2 Cooper, 660 ft. N, 3,551 ft. E, SW cor., Sec. 13-16-6	Drlg. 1,360 ft.

SABINE PARISH—ZWOLLE

Roy Baker's No. 1 Sabine Lbr. Co., Sec. 1-7-12	Drlg. 1,400 ft.
W. M. Coates' No. 1 Hale, NE cor. SW NE, Sec. 1-7-13	Derrick.
W. M. Coates' No. 1 Williams, NE cor., Sec. 23-7-11	Coring 2,710 ft.
W. M. Coates' No. 1 McNeely, NW cor. NE NW, Sec. 14-7-11	Dry and abd. 2,630 ft.
Hawkins et al's No. 1 Moran, Sec. 1-7-11	400 ft. oil in hole 2,620 ft; W.O. S.R.
O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-12	S.D. 2,260 ft.
Hawkins & Antoon's No. 1 Newton, Sec. 1-7-11	Set 6-in. 2,402 ft.
Jordan Drlg. Co.'s No. 1 McCormick, Sec. 2-7-11	Drlg. 2,000 ft.

(Continued on Page 89)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA
BIENVILLE PARISH

Company, farm and location—	Remarks:
Ark.-La. P. L. Co.'s No. 1 Gayoso Co., Inc., 560 ft. N, 660 ft. E, SW cor. NW SW, Sec. 14-16-10	Coring blue sandy shale 2,602 ft.
Arcadia Drilling Co.'s No. 1 Atkins, 175 ft. W, 120 ft. N, SE cor. NW NE, Sec. 27-18-6	Began June 10; set 12-in. 80 ft; drlg. 300 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W. C, Sec. 15-22-14	Cored sand 2,872-82 ft; arranging to set 4½-in.
Flint River Oil Co.'s No. 1 C. L. DeMoss, 200 ft. S and E, NW cor. SE NW, Sec. 22-22-12	Resumed drlg. 2,702 ft.
Dr. W. N. Hankins' No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11	Drlg. hard rock 1,002 ft.
D. L. Perkins' No. 1 Ardis & Co., 1,127 ft. N, 198 ft. E, SW cor., Sec. 13-15-11	Set 10-in. 90 ft; S.D.
Rombaugh et al's No. 1 Allison, SW SE, Sec. 10-19-13	S.D. 1,600 ft.

CADDO PARISH

Pelican Nat. Gas Co.'s No. 1 Cooper et al, 1,810 ft. E, 1,064 ft. S, NW cor., Sec. 29-18-14	Drlg. lime rock 3,586 ft.
United Gas Public Service Co.'s No. 1 M. K. Smith, 660 ft. S, 2,640 ft. W, NE cor., Sec. 33-23-16	Drlg. plug 3,600 ft.

CALDWELL PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4	Derrick.
Hudson et al's No. 1 Burton, Sec. 35-12-2e	S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMiller, 70 ft. N, 100 ft. W, C, Sec. 26-9-6	T.A. 3,097 ft.

CLAIBORNE PARISH

Leue Oil Co.'s No. 1 Kinder, 154 ft. N, 642 ft. E, SW cor. SE, Sec. 2-21-7	Drlg. 3,000 ft.

DE SOTO PARISH

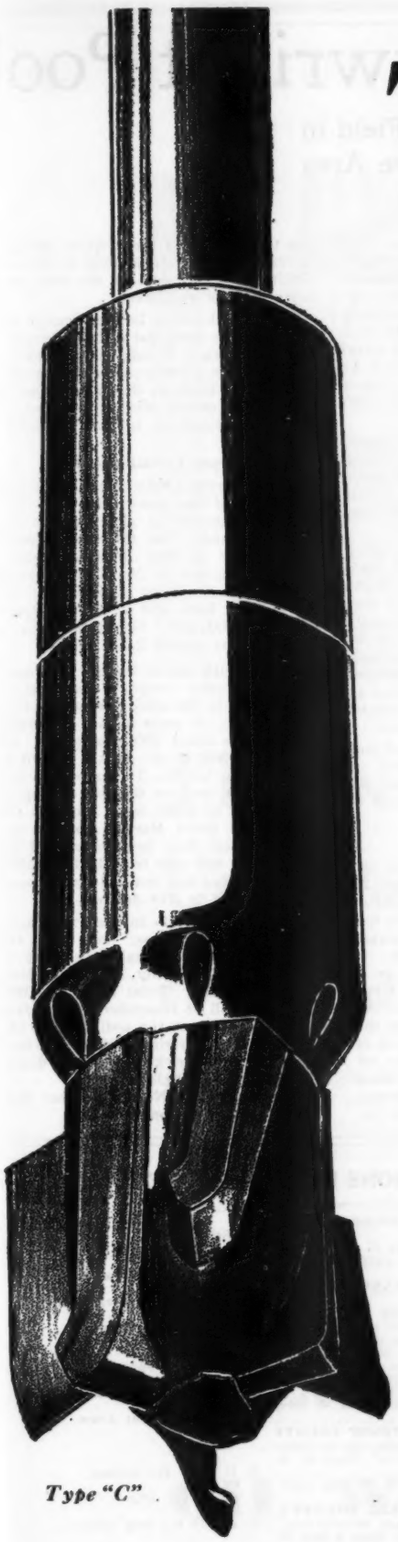
Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15	S.D. 2,350 ft.
Ben Merritt, tr.'s No. 1 Walluma, NE cor. SW SW, Sec. 29-12-12	Set 6-in. csg. 2,580 ft; T.D. 3,657 ft.
E. T. Oakes' No. 1 R. H. Bryant et al, 200 ft. N and W, SE cor. NE NW, Sec. 30-13-15	Coring chalky shale 1,898 ft.
Rellitt Oil Co.'s No. 1 Gannon hrs., 300 ft. S and E, NW cor. NW NE, Sec. 12-11-16	Drlg. 1,410 ft.
Walters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 3-11-13	Rigging up.

NATCHITOCHES PARISH

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 24-9-10	T.A. 4,091 ft.

(Continued on Page 91)

Three In One



Type "C"

1.

SPLIT LINER is furnished with Perfection Core Barrel to enable the core to be removed without disturbing the position or breaking same.

Type "M" Bit Body

2.

TYPE M CUTTER HEAD puts the water circulation directly on the cutting edge, allowing the core to be cut clean and quickly in the hardest sands. By the use of the Type M Bit Body, which is furnished free, the Type M cutter heads can be used on the Type C Core Barrels.

3.

ROLLER CUTTER HEADS can be used with the Perfection Core Barrel by the use of the type M Bit Body, thus enabling you to cut the hardest rock formations.

Type "M" Cutter Head

Roller Core Bit Heads

The Brewster COMPANY~INC.

Shreveport, Louisiana

Warehouses: The Iverson Specialty Co., Oklahoma City, Oklahoma, Phone 2-2833; The Brewster Houston Store, 2000 Harrington St., Capitol 2031.

New Oil Sand Found in Cartwright Pool

Houston Oil Co. Makes Important Find in Gas Field in Southwest Texas. Pettus Sand Covers Extensive Area

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., June 22.—Pettus sand has been traced in the logs of wells by geologists all the way from Raccoon Bend Field in Austin County to the Rio Grande at the southern end of Starr County, following the zone of the Reynosa escarpment wherever that is treaceable on the surface and following the zone of the Reynosa outcrop on northeast.

When the industry rights itself and the world again needs oil those familiar with Southwest Texas expect to see the next wildcat play along the lines described above. With the exception of the Slick discovery of a new gas sand in Victoria County and developments along that line which is 25 miles or so nearer the coast there have been more important developments along the Reynosa zone than anywhere else in this territory.

At the northeast end of the play the United North & South Development Co. in Colorado County, 9 miles southeast of Columbus, has abandoned its No. 1 Lockwood at 5,585 feet which penetrated the Pettus sand but got it dry. Forty miles southwest of it in Lavaca County, south of Ezell, F. P. Zoch along the same general line has started No. 1 Dobard in the T. G. Western Survey and is down about 1,000 feet.

Just north of the Slick Pool on the DeWitt-Goliad County line Gibson & Sturm have a location in DeWitt County for a test that will be started soon and south of the Slick Pool, where two producers were completed at 4,212 feet, V. F. Neuhaus has rigged up over the old No. 1 Pettus of the Southern Crude Oil Purchasing Co. which was abandoned at 3,853 feet and will deepen it to the Pettus sand, which in the Pettus Field is found at around 3,950 feet.

Much Interest in Test

Late in the week operators were waiting to see the outcome of the test of J. M. Davis' No. 1 Ray, a mile west of production at the southwest corner of the Pettus Townsite Pool. It was in sand with casing set and total depth 3,925 feet and looking like a well. There is a dry hole between it and the field on the east and the theory of the geology on which the test was drilled was that a cross fault separates it from the field and that it will be a separate pool. Casing had been set on the Davis well and it was expected it would be brought in early this week.

Mauldin's No. 1 Fee is about half way between the Davis well and the pool on the east and has not been tested yet. Its depth is 3,861 feet and it showed considerable oil.

Along that same general line of activity, the Burke-Greis Oil Co. last week abandoned its No. 1 West in Live Oak County, 10 miles west of the town of George West and 30 miles southwest of the Pettus Field. It reached a total depth of 4,008 feet and was abandoned dry. The company geologists stayed on the well all the time it was being drilled and took 21 cores which were submitted to 11 major companies for identification. It is supposed that the test got the top of the Jackson formation at about 2,462 feet though the work of examining the cores is not complete yet. It had an elevation of 305 feet.

The next activity along the same line southwest of that is in the Laredo district.

Cross faulted condition in the Pettus area seems to have been proven by the United Production Co. getting a dry hole in No. 38 Ray, 1,000 feet east of the No. 35, which is the fartheast east producer in connected production. No. 38 was reported dry a couple of weeks ago at 3,979 feet. It got the sand at the right depth but got salt water. The company's No. 37 Ray, more than a mile farther southeast, at latest reports was down approximately 4,500 feet and drilling. The company's No. 11 Ray, 2,500 feet southeast of it, blew out from gas at 3,815 feet, and its No. 3 Ray, northeast of it 4,000 feet, was a small oil and gas well at 4,060 feet, to which depth it had plugged back after drilling to a total of 6,056 feet.

In southern McMullen County about 25 miles southwest of Burke-Greis' No. 1 West, Camp and others last week abandoned at 2,222 feet No. 1 Murphy in salt water but it is understood may drill another test on the lease block.

On a line of activity 15 or 20 miles nearer the coast Carsil Oil & Gas Co.'s No. 2 McGill in northwestern Jim Wells County has been carried to 4,272 feet and abandoned dry. It was previously abandoned at 3,004 feet and was so reported in The Oil and Gas Journal. Later the company decided to deepen still farther. It failed to get the sand at a little below 2,600 feet which produced gas in the No. 1, opening a new pool.

Gulf Production Co. has completed and abandoned its fourth formation test in northwestern Jim Wells County on the big Schaeffer ranch at 2,366 feet and is moving on to the No. 5.

New Cartwright Sand

The most important happening in the week is the Houston Oil Co.'s No. 23 Cartwright in the Cartwright gas field in southeastern Live Oak County which has found a new sand at 3,554-65 feet standing with 1,700 feet of oil in the hole. It made 250 feet of 24 gravity oil in 8 minutes on the drill stem test. The Cartwright Field is about 25 miles nearer the coast line than the Pettus Field and the gas sand producing at about 2,200 feet is not producing elsewhere. Now the oil found at 3,554-65 feet is also a new sand not producing elsewhere. The Pettus sand extends from Raccoon Bend to the Rio Grande and in the mind of the wildcatter these two sands point to the possibility of other pools in the same sand northeast and southwest.

West of Skidmore in Bee County, and about 8 miles northeast of the Cartwright Field, Gribben & Woods have spudded in and are down a few hundred feet in their No. 1 L. M. Riggs in the James Nowland Survey. It should pick up some of the same formations as in the Cartwright Field.

Corpus Christi District

In the Corpus Christi district the past week two of the more than mile deep tests have started to plug back to test shallower sands. On the north side of Nueces Bay in San Patricio County, Saxet Oil Co. got its No. 4 White Point Development Co. down to 5,750 feet and has plugged back and is now testing a sand at 1,900 feet. Gas production in the field is at around 2,200 feet.

On the south side of the bay in Nueces County the same company completed its No. 8 Dunn in the older part of the field at 4,278 feet. It made mainly salt water but produces about 200 bbls. of oil. In the Saxet Field, L. L. Smith stopped at 5,388 feet in his No. 1 Hunter and has plugged back and set 6⅝-inch casing to make a test at 3,368 feet. Houston Oil Co.'s No. 2 Rand Morgan, another attempt to find deep production and located only a half mile from L. L. Smith's No. 1 Hunter, has reached and passed 5,500 feet and is still drilling.

Other developments in that field have not made much progress. Gulf Coast Oil Co.'s No. 1 Harrell, a half mile north of Smith's No. 1 Hunter, was swabbing late in the week. Total depth is 4,095 feet and it will be remembered that after casing had been set the well blew in between the inside string and the surface string and the derrick was burned down. This delayed completion.

Houston Oil Co.'s No. 1 Lawrence that

(Continued on Page 96)

SOUTHWEST TEXAS PROVEN AREAS

COOKSEY POOL—BEXAR COUNTY

Company, farm and location—	Remarks:
Penn Oil Co.-Sun Oil Co.'s No. 1 Pollok, 1,100 ft. SW of No. 1 Cooksey in John W. Raill Sur.	T. D. 1,420 ft.; reset csg.

DOBROWOLSKI POOL—BEXAR COUNTY

Gatlin Oil Co.'s No. 7 L. A. Beck, 150 ft. SW line, 1,351 ft. SE line of tract, Montes Sur.	Rigging up.
Patton & Yocum's No. 1 T. Strunk, 1,351 ft. from SE line, 150 ft. from NE line of tract	T. D. 727 ft.; installing pump.
W. S. Rogers et al's No. 1 L. Donnop, Juan Montez Sur.	T. D. 612 ft.; shut down.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, A. Floyd Sur.	T. D. 850 ft.; drlg.

LYTTON SPRINGS—CALDWELL COUNTY

J. A. Harper's No. 4 Strawn, 150 ft. from N and E lines of tract in Pablo Martinez Sur.	T. D. 1,540 ft.; shut down.

EDDINGTON POOL—FALLS COUNTY

Eddington et al's No. 3 Llewellyn, George Allen Sur.	T. D. 1,070 ft.; fishing.

DARST CREEK FIELD—GUADALUPE COUNTY

Magnolia Pet. Co.'s No. 4 M. T. Klein, 300 ft. SE of No. 1	T. D. 1,600 ft.; drlg.

CHAPMAN POOL—WILLIAMSON COUNTY

Chapman et al's No. 2 Lawrence, S. Miller Sur.	T. D. 1,916 ft.; set 6⅝-in. csg.; waiting on cement.
Vitex Oil Co.'s No. 3 Kilgore, Simon Miller Sur.	T. D. 1,735 ft.; waiting on cement.

FETTUS POOL—BEE COUNTY

Cosden Oil Co.'s No. 2 J. M. Freeland, in John Pace Sur. No. 1	Derrick up.
J. M. Davis et al's No. 1 Ray, 330 ft. from N and E lines of John W. Williamson Sur.	Preparing to drill plugs.; T. D. 3,925 ft.
J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr Sur.	T. D. 3,862 ft.
Geo. N. Moore et al's No. 2 Freeland in John Pace Sur., 1,000 ft. from S line, 600 ft. from E line of survey	Rigging up.
United Prod. Co.'s No. 37 Ray, 3,300 ft. from SW line, 990 ft. from SE line of Willis A. Moore Sur.	T. D. 4,020 ft.; drlg.

CARTWRIGHT POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 23 Cartwright, 691 ft. N, 30° E of No. 11	T. D. 3,565 ft; set csg.; building storage.

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities' No. 8 Chittim, 24 ft. S of No. 7 Chittim	T. D. 2,680 ft.; drlg.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Maggie Harrall, 330 ft. from S and W lines of Blk. 32, Sec. 311	T. D. 4,095 ft.; swabbing

(Continued on Page 89)

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Glen Mathis, trustee's No. 1 Martin, 150 ft. to NE line, 2,640 ft. to SE line of tract in Jose Antonio Navarro Sur.	T. D. 2,012 ft.; drlg.

BLANCO COUNTY

Hardy-Sitton's No. 1 McMillan	T. D. 696 ft.; fishing.
Liles-Adams et al's No. 1 Stanford, 150 ft. to E line, 1,420 ft. to E line of James Stanford's No. 155	T. D. 970 ft.; standing.
McCleary et al's No. 1 Schening, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City	T. D. 574 ft.; shut down.
J. R. Meek's No. 1 Walker, 360 rds. from W line, 482 rds. from S line of 375-ac. tract in Sur. No. 33	T. D. 1,078 ft.; fishing.
C. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,360 ft. to N line, Sur. No. 94	T. D. 712 ft.; shut down.

BASTROP COUNTY

Schimmel & Batts' No. 1 J. E. Ferguson, 160 ft. from NW line, 1,600 ft. from NE line of tract in J. Doyle Sur.	T. D. 1,684 ft.; testing.
Smith & Barnes' No. 1 Marberger, 50 ft. W line, 1,360 ft. S line of tract in King & Millet Sur.	T. D. 227 ft.; drlg.

BELL COUNTY

Mildon Oil Co.'s No. 1 J. K. Edds, Maxiano Moreno Sur.	T. D. 875 ft.; drlg. shale.
C. O. Alford's No. 1 A. L. Keifer, 150 ft. from S and W lines of tract in Woodford Sur.	Location.
Vilas Oil Co.'s No. 1 B. F. Whittington, 9 miles E of Holland	T. D. 1,298 ft.; shut down.

BROOKS COUNTY

O. C. Woods' No. 1 J. G Ramos, 959 ft. to E line, 785 ft. to S line of Tract 10, Blk. 3, Amos Dinn Subd., La Lestena grant	T. D. 200 ft.; drlg.
Ike Howeth's No. 1 Singer, 400 ft. E of Humble's No. 1 Singer	T. D. 1,723 ft.; tested salt water.

BEE COUNTY

Alexander et al's No. 1 McFall, 3 miles S Skidmore	T. D. 1,475 ft.; standing.
Grebin & Woods' No. 1 Riggs, 4,500 ft. to E line, 200 ft. to N line of James Nowland Sur., 6 miles W of Skidmore	T. D. 272 ft.; drlg.
Mauldin et al's No. 1 Kimball, 300 ft. S Grayburg's No. 1-A Kimball, S. Winship Sur.	T. D. 3,544 ft.; pulled liner.

BEXAR COUNTY

Ingersoll-Miller's No. 2 E. B. Carruth, 750 ft. S of No. 1	T. D. 435 ft.; comp. dry.
Schneider, Rees et al's No. 2 Claussen, 12 miles NE of San Antonio	T. D. 850 ft.; drlg.

(Continued on Page 89)

The first OP-300 Unit Pumping Power to be installed—near Beebe, Okla.

The NEW OP-300

Unit Pumping Powers Cost Less to Install . .

ONLY a single flat concrete foundation need be built for installing OP-300 Unit Pumping Powers, a new development of Oil Well Supply Company and Westinghouse-Nuttall engineers. This is because the braced Sampson post and the gear unit with built-in motor and control are rigidly mounted on the same steel base.

Connecting the polish rod to the hanger, three incoming power leads to terminals in the control box, and the addition of the proper amount of oil to the gear case, complete the installation. Pressing the "start" button puts the well in operation.

No housing of any kind is needed, not even over the motor and control, for these parts and all wiring, are compactly combined with reduction gears into one absolutely weather-proof unit. And there are no belts, chains, external wiring or other appurtenances to protect from the elements.

These installation advantages can be realized on most any well as three sizes of OP-300 Unit Pumping Powers with capacities up to 40 hp., provide pumping speeds of 10 to 30 strokes per minute, and stroke lengths of 12 to 72 inches.

Inquire at any Oil Well Supply store, or Westinghouse sales office for full details.

DISTRIBUTED BY

OIL WELL SUPPLY COMPANY

(SUBSIDIARY OF UNITED STATES STEEL CORPORATION)

Westinghouse

T 31733

New Dome Found in Plaquemines Parish

Humble Discovery Flows 500 Bbls. in First Nine Hours. Tremendous Gas Pressure in Southern Victoria County Wildcat

By Nell Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., June 22.—Lake Grand Ecaille, Plaquemines Parish, Louisiana, was added to the list of producing domes on the Gulf Coast the past week, making the second new coastal field opened within a month. The discovery well was Humble Oil & Refining Co.'s No. 4 Cockrell-Moran, which came in flowing 500 bbls. through a three-quarter-inch choke in the first nine hours but which was pinched down to 20 bbls. an hour on a one-eighth-inch choke.

Producing from shallow cap rock, the new field is of considerable interest on the Gulf Coast. Cap rock fields including such as Spindletop, Humble, Sour Lake and Batson, have been the most prolific producers but have been comparatively few. Among the newer fields, only Sorrento, owned by the Gulf Refining Co., in addition to Lake Grand Ecaille, is producing from the cap although its development has not turned out so successfully.

The cap rock in Humble's No. 4 Cockrell-Moran was topped at 1,074 feet and drilled to a total depth of 1,158 feet. However, 9⅝-inch casing was run into the cap at 1,141 feet and cemented, leaving only 17 feet of the cap from which the well is producing. The well is flowing without screen in the hole and through the 9⅝-inch casing, which makes the well unusually good. One joint of 7-inch (outside diameter) was set in the hole at first but evidently became clogged as the hole was bailed dry and the well did not come in until after the screen was pulled, the oil following the screen out of the hole.

Like other cap rock production, the oil is a heavy gravity lub crude. It is 19.1 gravity at the well temperature of 85°. While such oil, before the last crude price revision, would have been classified as Grade A, being very valuable for lubricant manufacture, it now comes under the gravity schedule and is worth only the bottom posting of 44 cents.

Seismograph Discovery

Lake Grand Ecaille, which previously had been proved as a dome by other tests drilling into cap rock and salt, was discovered by the seismograph in 1928. While development is being done by Humble, it is owned jointly by Gulf Refining Co., Shell Petroleum Corp. and Humble. The discovery well is the fifth test drilled, including two deep tests, No. 1 Lake Washington and No. 2 Cockrell-Moran. The other three have been in the shallow cap rock area. No. 1 Lake Washington, abandoned last August in shale at 5,422 feet, encountered a sand at 5,149-52 feet flanking the dome and bailed a small amount of oil but not in commercial quantity. No. 2 Cockrell-Moran, which was abandoned during May in salt at a total depth of 5,851 feet, also found several sands but these showed salt water on tests. The first test drilled, No. 1 Cockrell-Moran, went into the cap rock and showing oil was tested but bailed only salt water. The discovery well is approximately 4,500 feet to the east of the other cap rock tests and indicates a large cap rock area.

The location of Lake Grand Ecaille is in the southernmost part of Plaquemines Parish in the extreme southeastern end of the State. It is in the coastal marshes about 7 miles inland. All operations have been under water. The dome lies in Township 20s, Range 26e, the discovery well being in Section 14. This is about 50 miles south of New Orleans. The field is the most easterly on the Gulf Coast by more than 50 miles. Two other domes further east have encountered gas blowouts, indicating fields, but no commercial fields have been proved on them yet. However, as Lake Grand Ecaille is just west of the Mississippi River, Sorrento still holds the distinction of being the only field east of the river.

Production at Lake Grand Ecaille will be moved out by barge. However, due to the controlled operation and to the fact that the dome is virtually all on state-owned water beds, there will be no competitive development of the field and production will be held to the minimum.

Tremendous Gas Pressure

A field of tremendous gas pressure is indicated by T. B. Slick Estate's No. 1 McFaddin, J. Vairan Survey, southern Victoria County, Texas, in the lower coastal district. After the well was thought to have been completed successfully early the past week on the third try, it again blew the screen out of the hole and up into the christmas tree. Efforts are being made to kill the well again and this time the screen probably will be run in on the bottom of a full string of liner to hold it down.

This well is in a sand at a total depth of 3,512 feet. Twenty-one feet of 4¾-inch screen first was set early this month but the well blew out and blew the screen up into the christmas tree connections, breaking them. The well, however, was killed successfully and the screen run again, but was blown loose again. The screen was run in the third time early this week and the well completed estimated good for 40,000,000 feet of gas. It was not long, however, before the screen again was blown up into the connections.

The well is a wildcat, being 3½ miles to the north of two wildcat gas wells brought in by Lion Oil & Refining Co., Nos. 1 and 2 McFaddin, Maria Traviesa Survey, late in 1930 and early 1931. Those wells, which are within 600 feet of each other, are in sand at approximately 3,740 feet and are good for 40,000,000 feet each. They since have been taken over by United Production Corp., which holds the gas rights on the block, Lion owning the oil rights. Both companies have been drilling on the block separately.

Whether these wells and the Slick well constitute one large producing area or are separate fields remains to be proved, although it is generally believed that a major field of large extent exists in that part of Victoria County, possibly extending over into Refugio County and lining up with the Refugio Field itself and the numerous other productive spots indicated paralleling the coast in the lower coastal plain.

Barbers Hill

Another good well was completed on the west flank of the Barbers Hill Dome, Chambers County, in Rio Bravo Oil Co.'s No. 2 Fisher, which came in flowing 1,050 bbls. of pipe line oil daily through a five-eighths-inch choke, 160 pounds pressure, from sand at a total depth of 5,885 feet. The well is the extreme south end of production of the west flank pool, and extends the pool one location. Gulf Production Co.'s No. 4 Wilburn, east flank, tested salt water in sand at 5,166-5,220 feet, after being plugged from 5,290 feet, and has been abandoned. Sun Oil Co.'s No. 2 Winfree, west flank, has been abandoned temporarily in a cavity at 3,621 feet. These mark further suspension of operations at Barbers Hill as all rigs, as fast as present drilling is completed, are being shut down. Only 13 tests remain drilling as against upwards of 25 to 30 earlier in the year.

With the completion of its No. 118-A Cotton, a shallow 60-bbl. well brought in the last week at Saratoga, Rio Bravo Oil Co. also has suspended drilling operations in that field. This company for some time has been the only company drilling there. The completion of The Texas Company's No. 40 Stevenson, a workover, at Humble, as a small pumper at 5,112 feet, leaves one rig running in that field, that being Rio Bravo Oil Co.'s No. 2 H.E.&W.T., which is now fishing at 3,508 feet. When it is completed or abandoned it probably will mark the suspension for the time being of all development there.

Dog Lake Dome

The Texas Company has abandoned in cap rock at 4,580 feet its No. 4 State at the Dog Lake Dome, southern Terrebonne Parish, Louisiana. This is the sixth test drilled on this dome. The first, which made a 50-bbl. pumper at 1,062 feet, has proved the only production so far. It was completed in May, 1929, but since has been abandoned, leaving the dome unproductive. Four other tests of little importance were abandoned during the week.

Of some interest, particularly from a sulphur standpoint, is the taking over of the Thibodeaux (Lutcher or Chacahoula) Dome in LaFourche Parish, Louisiana, by the States Production, Inc., a newly organized subsidiary of the DuPont interests of Wilmington, Del. This company, of which Finn Starre is president and M. B. Fisher secretary, has leased a solid block of 3,020 acres overlying the dome and will prospect for sulphur in the shallow cap. Texas Gulf Sulphur Co. and the Gulf Refining Co. formerly held this acreage although not in a solid block (fee owners retaining a tenth of every quarter section), and drilled a series of 26 tests without finding sulphur in commercial quantities. A part of the property to the east, however, was not prospected and the DuPont interests probably will try to develop that area. It is reported location will be made early this week for the first test although drilling is not required before August.

GULF COAST FIELDS AND WILDCATS

Week Ended June 20
All Rotary

BARBERS HILL—CHAMBERS COUNTY

Gulf Prod. Co.'s No. 4 Wilburn (D.D.), Henry Griffith League, 1,400 ft. W line and 50 ft. S line of lease	Total depth 5,290 ft.; plugged to sand 5,166-5,220 ft.; tested salt water.
Humphreys Corp.'s No. 6 E. H. Winfree, W. D. Smith Sur., 50 ft. from N line and 50 ft. from W line of tract	Drlg. rock 3,895 ft.
Humphreys Corp.'s No. 2 T. S. Fitzgerald, Henry Griffith League, 300 ft. from N line, 65 ft. from E line of tract	Sandy shale showing oil 5,161 ft.; cem. 7-in. (O.D.) casing.
Humphreys Corp.'s No. 1 Fitzgerald-Meadows, Henry Griffith League, 50 ft. S and 100 ft. E of NW cor. of tract	Drlg. salt 3,074 ft.; top salt 1,397 ft.
Mills Bennett Prod. Co.'s No. 1 Gulf-Fisher (workover), William Bloodgood Sur., 50 ft. from SW line and 250 ft. from SE line tract	Cutting and pulling screen 5,357 ft.
Mills Bennett Prod. Co.'s No. 4 Gulf-Fisher, Wm. Bloodgood Sur., 300 ft. from W line, 80 ft. from N line tract	Salt 2,896 ft.; losing returns.
Rio Bravo Oil Co.'s No. 2 Fisher, west flank	Set 66¼ ft. 5⅝-in. casing 5,885 ft.; comp. flowing 1,050 bbls. daily, 160 lbs. pressure, ⅝-in. choke.
Sinclair Oil & Gas Co.'s No. 2 Smith, W. D. Smith Sur., 50 ft. out of S cor. of tract	Drlg. rock 4,470 ft.
Sun Oil Co.'s No. 3 Smith, W. D. Smith Sur., 75 ft. from W line, 50 ft. from N line of tract	Drlg. rock 4,873 ft.
Sun Oil Co.'s No. 3 Smith, W. D. Smith Sur., 50 ft. from S line, east offset Yount Lee Oil Co.'s No. 3 Winfree	Drlg. rock 4,513 ft.
Sun Oil Co.'s No. 2 Winfree, W. D. Smith Sur., 450 ft. SE along SW line from NW cor. of tract and 50 ft. NE at right angles	Temporarily abandoned 3,621 ft.; cavity.
Sun Oil Co.'s No. 1 Anna Higgins, Wm. Bloodgood Sur., 230 ft. from E line and 31 ft. from S line 10-acre tract	Drlg. rock 1,884 ft.
The Texas Company's No. 2 Winfree, west flank, W. D. Smith Sur., 264 ft. N, 50 ft. W at right angles out of SE cor. of lease	Resetting screen to deepen 5,622 ft.
The Texas Company's No. 4 Wilburn (D.D.), Henry Griffith League, approximately 1,700 ft. from W line and 50 ft. from S line of tract	Total depth 5,292 ft.; sidetracked 5,124 ft. to sand 5,188 ft.; tested salt water.
The Texas Company's No. 6 Wilburn, Henry Griffith League, 250 ft. W of No. 4 and 50 ft. from S line of lease	Drlg. sand and shale 2,456 ft.
Yount Lee Oil Co.'s No. 3 Winfree, W. D. Smith Sur., 190 ft. out of NE cor. of tract	Drlg. shale 5,533 ft.

HUMBLE—HARRIS COUNTY

Rio Bravo Oil Co.'s No. 2 H.E.&W.T., Adams Sur., 250 ft. N along railroad tract from No. 1 and 25 ft. W from center of said tract	Total depth 4,742 ft.; drill pipe stuck 3,508 ft.

PIERCE JUNCTION—HARRIS COUNTY

Rio Bravo Oil Co.'s No. 14-A Settegast (workover)	Sand and shale showing oil 5,375 ft.; rigged up to pump.
Rio Bravo Oil Co.'s No. 22-A Settegast, J. Kopman Sur. No. 44, 990 ft. S and 200 ft. W of NE cor. "A" lease	Drlg. sand 4,136 ft.

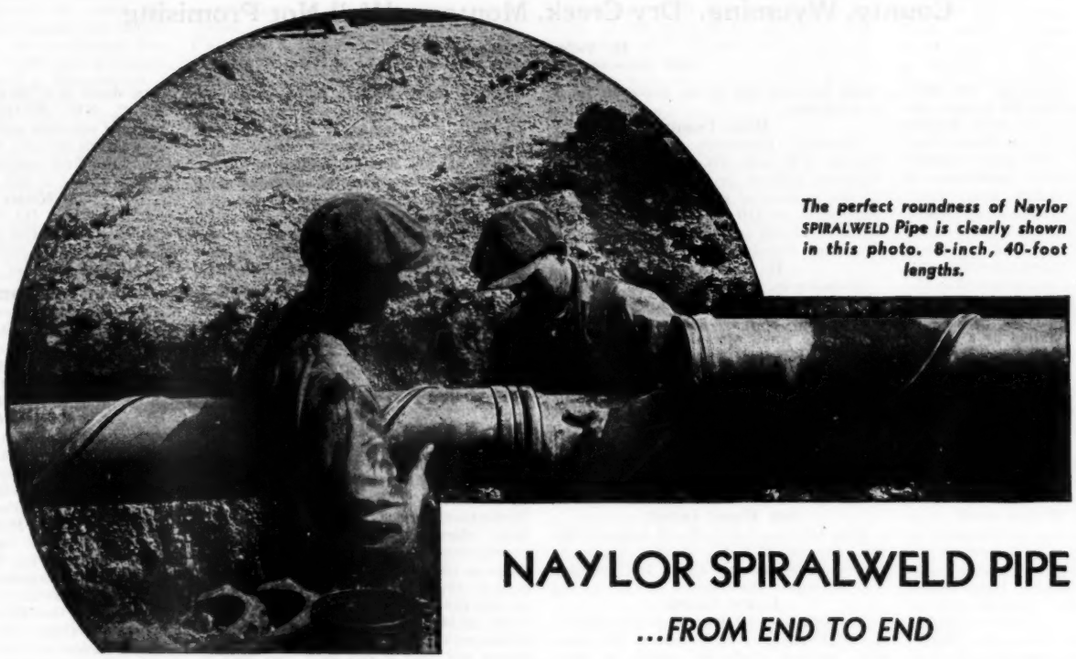
LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 13 Mayes, B.B.B.&C. Sur. No. 4, 75 ft. W and 700 ft. S of NE cor. of survey	Drlg. hard sandy lime with streaks of calcite 5,487 ft.; showing oil.

PORT NECHES—ORANGE COUNTY

The Texas Company's No. 1 Polk-Kuhn-Glass, 260 ft. E and 1,545 ft. S of SW cor. Marshall Beaucham Sur., in the T. J. Notgrass Sur.	Rig.

(Continued on Page 92)



The perfect roundness of Naylor SPIRALWELD Pipe is clearly shown in this photo. 8-inch, 40-foot lengths.

NAYLOR SPIRALWELD PIPE

...FROM END TO END

UNIFORMLY ROUND AND TRUE IN DIAMETER!

TRADE MARK

NAYLORPIPE

PIPE CARRIED IN STOCK AT CHICAGO, HOUSTON AND LOS ANGELES

NAYLOR PIPE COMPANY

MAIN OFFICE AND PLANT
1230 East 92nd Street, CHICAGO

SALES OFFICES

NEW YORK
2116 Chrysler Building

PHILADELPHIA
Witherspoon Building

TULSA
507 Philtower Building

HOUSTON
2301 Commerce Street

FT. WORTH: 402 Petroleum Building

LOS ANGELES: Champion & Barber, Inc., 576 Subway Terminal Building., Exclusive Distributors: California, Nevada and Arizona

MONTREAL, CANADA: Mechanical Equipment Company, 660 St. Catherine St., West

VANCOUVER, B. C.: Gordon & Belyea, Ltd., 101 Powell Street

MEXICO: C. H. Elsner, Apartado 284 Monterrey N. L.

- NAYLOR SPIRALWELD Pipe is wound on a turned mandrel and rigidly held in formation by an electrically welded spiral lock-seam truss running the entire length of the pipe. This construction assures a pipe of absolute diameter...as truly round in the middle as it is at the ends.
- The perfect roundness of Naylor SPIRALWELD Pipe is of high value in the field. It speeds up jointing, since the ends always match perfectly and coupling or welding is accomplished without costly preliminary work. Moreover, the spiral lock-seam truss greatly strengthens the pipe, protecting it against rough handling in shipping, transporting and in the field.
- The Naylor lock-seam truss structure also provides maximum structural strength, minimum weight and flexibility. Thus, Naylor SPIRALWELD Pipe...can be used for the same pressures as standard weight wrought pipe... can be shipped, hauled, strung and coupled at less cost ...and is free from the danger of damage due to expansion and contraction.
- In addition, Naylor SPIRALWELD Pipe is made of Toncan Iron, an alloy of iron, copper and molybdenum with superior corrosion-resisting properties which greatly enhance the life of the pipe. Write our nearest office for literature and further data.

Plan Deep Test on Fort Morgan Dome

Oil and Gas Showing in Mahoney Dome Test, Carbon County, Wyoming. Dry Creek, Montana, Well Not Promising

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., June 22.—The Midwest Refining Co.'s No. 26 Capps, the only well drilling in the Hobbs Pool, was given a potential production of 1,523 bbls. daily. Leonard & Levers' No. 1 Justis, in the Jal Pool, was deepened a few feet and gas increased to 15,000,000 feet, but drilling has been halted by a fishing job. The Southern Union Gas Co. completed a small gas well in San Juan County. Plans for a deep test on the north Fort Morgan Dome in Morgan County were announced by W. A. Myers and associates. The Jones well in Baca County is being abandoned after testing the Pennsylvanian, but without reaching the Wilcox sand.

The Midway Dome test in Wyoming is trying to shut off bottom water. Considerable oil and gas are showing in a semiwildcat on the Mahoney Dome structure in Carbon County. The Vermillion Oil Co. encountered a small flow of gas in a flank well on the Hiawatha Dome. Two wells, one flowing 100 bbls. natural and the other swabbing 26 bbls. in 20 hours, were completed in the Osage Field and two new operations were reported.

In Montana, the Ohio Oil Co.'s second well to the Dakota formation on Dry Creek does not appear promising. The Montana Power Co. interests now have seven wells under way on the Cut Bank structure in Glacier County.

The Utah Southern Oil Co.'s show in Utah looks encouraging and a bailing test is in progress.

NEW MEXICO

Lea County

The Midwest Refining Co.'s No. 26 Capps, C SE SW, Section 3-19-38, in the southeastern part of the Hobbs Pool and an offset on the north to the same company's No. 11 Thorpe, was given a potential of 1,523 bbls. of oil and 1,230,000 feet of gas per day at a total depth of 4,188 feet. The well did not flow through the casing, but when 2½-inch tubing was run it flowed natural at the rate named This was the last well drilled in the Hobbs Pool and no wells are under way. Western Drilling Co.'s No. 1 State, C SW NE, Section 15-18-37, northwest of production, which shut down after rigging up, had the rig blown down the past week by a windstorm.

Leonard & Levers' No. 1 Justis, C SE NE, Section 19-25-37, Jal area, was deepened to 2,795 feet and there was an increase in the gas at 2,790-95 feet. It gauged 15,000,000 feet in 24 hours. The tools were blown up the hole and lodged 150 feet off bottom. The gas will be killed and the hole mudded before fishing starts.

Culberson & Conrad's No. 1 State, C NE, Section 22-18-34, Caprock area, is drilling at 1,735 feet in red beds and gray shale after changing over to cable tools.

Western Drilling Co.'s No. 1 State, SE NE NE, Section 16-20-32, northwest of the Lea Pool, is drilling at 2,430 feet in lime. It bottomed the salt at 2,315 feet and topped the lime at approximately 2,360 feet. The elevation is 3,460 feet. The log indicates the well is running 165 to 300 feet high.

Eddy County

R. D. Compton's No. 4 Brainard, 990 feet from the south line and 660 feet from the east line, Section 5-18-27, Artesia area, is rigging up. Location was made last fall just to the north of No. 3, a producer.

Otero County

Pasotero Petroleum Corp.'s No. 1 Evans, NW cor. SW, Section 22-24-12, Pasotero district, is drilling at 695 feet. It had a show of gas at 373 feet and a show of oil at 410 feet. This test is on a block of 21,000 acres acquired by M. W. Evans of Artesia.

De Baca County

Matador Oil Co.'s No. 1 Wood, NE SW SW, Section 6-4n-20, Salada Creek, is reported shut down for orders at 3,200 feet in granite wash after lowering the 6⅝-inch to 3,175 feet.

Mora County

Fulton Petroleum Co.'s No. 1 Santa Fe-Dioice Co., NE cor., Section 14-19-21, Wagonhound district, set 8¼-inch at 1,312 feet on top of what is believed to be the Santa Rosa formation, and is waiting. Carbon dioxide gas for making dry ice is the objective of this well.

San Miguel County

Star Oil Co., Ltd.'s No. 3 Adams, NE cor., Section 25-17-17, Dunken Dome, is reported drilling at 4,000 feet in the Pennsylvanian formation.

Catron County

An operation not heretofore reported is A. E. Fenner's No. 1 Bailey, NE cor. SW, Section 35-2n-16, which is shut down at 670 feet. It is planned to move in a machine and continue drilling.

San Juan County

Southern Union Gas Co.'s No. 2 Summitt, SW SE NE, Section 34-29-11w, Kutz Canon district, was completed as a gas well at 1,800 feet and gauged 1,200,000 feet in 24 hours. Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor., Section 20-28-10, is bottomed at 3,175 feet and fishing for tools. Reserve Oil Co.'s No. 3, NW SE SE, Section 36-22-14w, Stoney Butte, had about 3 feet of saturated sand in the Mesa Verde at 770 feet, followed by water in the remainder of the sand. The hole is bottomed on top of the second sand and 6⅝-inch is being underreamed to make a shutoff before drilling in. The second sand at 840-70 feet in a well drilled 200 feet away by Midwest Refining Co. made 30 bbls. initial. Great Mesa Oil Co.'s No. 1 Roderick, NW SW SW, Section 11-22-14, is shut down at 982 feet. H. L. Williams' No. 1 Stallings, NW SW, Section 17-25-15w, Rio Chaco district, is reported drilling at 200 feet. A crew of five men has arrived at Farmington with truck and automobile from California on their way to the Childers Drilling & Producing Co.'s No. 2 Ute, NW NW, Section 24-31-16w, Westwater district, to complete the well. New interests took over the operation several months ago and got its affairs in shape to resume. This well was reported early in 1929 to have had a good show of oil and gas at 2,075 feet in what was believed to be the top of the first Dakota. Subsequently the hole was reported much deeper and that a dry sand and then a water sand had been encountered. The total corrected depth is now given as 2,074 feet and there is some doubt whether it has yet reached the Dakota. Continental Oil Co.'s No. 24, SW NW, Section 1-29-19, Rattlesnake Dome, is sidetracking drill pipe at 4,029 feet. Total depth is 4,730 feet. R. C. Oswell's No. 2, NW, Section 34-30-11w, near Aztec, is reported waiting at 450 feet for an analysis of gas encountered at 375 feet. The first estimate on the flow was 1,000,000 feet a day.

McKinley County

Johnsonwood Oil Corp.'s No. 1, SW cor., Section 12-15n-10w, Walker Dome, is drilling at 50 feet and will test the Dakota at 1,100 feet.

COLORADO

Some of the most expert core drilling ever undertaken in this country to work out a geological structure has been started in the Beebe Draw area in Weld County 8 to 10 miles southeast of Greeley by the Midwest Refining Co.

Morgan County

Plans for another test in northeastern Colorado were announced this week by W. A. Myers of Denver, who, with his associates, have practically completed arrangements for drilling a well 3½ miles northwest of Fort Morgan on what is to be known as the North Fort Morgan Dome. The well has not yet been finally spotted, but the approximate location will be in the SE, Section 14-4n-58, 18 miles southeast of the discovery well on the Greasewood Dome and approximately the same distance to the northwest of the Indian Territory Illuminating Oil Co.'s Fort Morgan test.

Mr. Myers has secured leases on practically a solid block of 15,000 acres covering the structure. According to the geology, this is an elongated, egg-shaped structure lying north and west of Fort Morgan in Townships 4 and 5 north, Ranges 57 and 58 west. It extends northwest to southeast, approximately 7 miles in length and 4 miles at its greatest width. It has approximately 12,000 acres within its closing contour and has a vertical closure in excess of 70 feet. This indicates a low, broad, flat structure ideal for the accumulation of oil. The general field reconnaissance work was conducted by Midwest Refining Co. The detailed plane table geological and structural map has been the work of E. D. Johnson, formerly with the Stanolind and Midwest companies. The area also was checked by H. Norman Snively, formerly chief geologist of the Standard Oil Co. of California.

The Platte River has been more or less deflected by the structure and for a considerable distance forms its southern boundary. The Union Pacific Railroad crosses the property and has a station and ample facilities for handling freight. There is an ample water supply at hand and the "high" on the axis of the structure is within 4 miles of the city of Fort Morgan. Mr. Myers says that in his knowledge nowhere in northeastern Colorado has there been found a structure with as much geological merit, as well as practical features, to warrant a test. The contract between Mr. Myers and associates and the lessors provide that operations are to begin within 90 days from June 10, but it is possible that work will be under way within 30 to 40 days. Heavy-duty rotary equipment will be employed and the test will be carried to 6,600 feet if necessary. Associated with Mr. Myers is a coterie of Denver and Oklahoma men including H. Leslie Parker, the discoverer of the Big Muddy Field in Wyoming and the Midway and Geary Domes south of Salt Creek, and Arthur Olson, president of the Olson Drilling Co. of Tulsa. Mr. Myers is a Pennsylvania man with years of experience in the development and production of oil properties. He was a pioneer in the development of the Hiawatha-Vermillion Creek district in northwestern Colorado and

TURNER VALLEY DELIVERIES SHOW SMALL INCREASE OVER PAST MONTH

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, June 20.—Official reports of pipe line deliveries from the Turner Valley Field in May show a small increase over April, and a substantial increase over May, 1930. Total deliveries last month were 118,614 bbls., of which 112,288 bbls. went to Imperial Oil, Ltd., and 6,226 bbls. to Regal Oil & Refining Co. The April total was 114,217 bbls., and the total for May, 1930, was 84,046 bbls. Of last month's production, 41,227 bbls. were classified as crude naphtha, 70,597 bbls. as discolored naphtha and 6,790 bbls. as light crude. The outstanding producer last month was Mercury Oils' No. 1 with 14,428 bbls. East Crest Oil Co.'s No. 3 delivered 10,912 bbls., while Mayland Oil Co.'s No. 6, one of the newest completions, showed 7,498 bbls.

The total production of the Turner Valley Field for the first five months of 1931 is 650,731 bbls., compared with 554,453 bbls. for the same period in 1930. Actual production is, however, larger this year than the delivery totals indicate, an increasing quantity of unrefined naphtha being sold direct at the wells to farmers and other consumers.

Imperial Operations

In South Turner Valley, Merland Oil Co.'s No. 1, Section 27-18-2w5, has been cleaned out with diamond bit and is reported in steady production. No official figures have been given out by Imperial Oil, Ltd., which drilled the well, but Merland Oil Co. interests report the well making between 350 and 400 bbls. This would make it one of the big wells in the field.

Lowery's No. 2 seems likely to set a new deep record. The test got the lime at around 6,070 feet, and was recently given a production test at 6,433 feet. This test proved unsatisfactory and the hole will be drilled deeper.

Hudson's Bay Tests

In the Keho Lake district, southern Alberta, Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, is drilling near the bottom of the Benton shales at 4,243 feet, carrying casing behind the drill. No further water trouble has been met, and the next potential oil horizon is looked for at 4,400 feet. Tentative location is reported to have been made for No. 2 Keho on the William Oliver farm across the road from No. 1, this test to be drilled if No. 1 proves a commercial producer.

In the Castor district, Hudson's Bay's No. 1 Paintearth, LSD 5, Section 27-39-15w4, is drilling below 4,480 feet and carrying 6⅝-inch casing.

Deepen Taber Well

In the Taber district, Alberta Pacific Consolidated's No. 1 Cole-Hunter, LSD 3, Section 11-10-17w4, was given a production test at 3,330 feet after drilling 16 feet into the sand. The well is being drilled with rotary tools and heavy mud. A strong gas pressure was indicated at the commencement of the test. This later

(Continued on Page 95)

southwestern Wyoming, which now supplies Utah with natural gas.

The Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morgan anticline, which has been bottomed for some time at 4,090 feet with casing trouble, has about completed rigging up rotary tools to resume drilling. The 8¼-inch is cemented at 3,650 feet and there will be about 400 feet of cavings to be cleaned out before new hole is made. It is expected this test will be close to 1,000 feet shallower than the discovery well at Greasewood.

Weld County

Reiter-Foster Oil Co.'s No. 1 Ida Johnson, C NE NW, Section 24-6n-61, Greasewood Dome, joint with the Platte Valley Petroleum Corp., an offset to the north of the discovery, is drilling at 5,500 feet. So far no casing, except the conductor pipe, has been run and it has not yet been decided definitely just where the 9⅝-inch will be set and a change over to cable tools made, but it will be somewhere between 6,000 and 6,500 feet.

Arapahoe County

MacDeb Drilling Co.'s No. 1 Fitzsimmons, C S half NE, Section 7-4s-66, near Aurora, is shut down at 5,835 feet to run 4½-inch. Approximately 4,000 feet of that size pipe is now on the ground.

Adams County

Nettie M. Slatt's No. 1 Hills, SE cor., Section 27-3s-64, Watkins district, is drilling at 3,650 feet and continues to show a coating of oil on the water and a little gas.

Lincoln County

Eastern Colorado Oil Co.'s No. 1 State, SE cor. NW, Section 36-14s-57, Hugo district, is underreaming 4¾-inch at 3,100 feet. Total depth is 3,380 feet.

Baca County

A. R. Jones Oil & Operating Co.'s No. 1 Boice Cattle, NW NE, Section 22-34s-42, Miles Camp structure, is reported being abandoned at a total depth of 4,965 feet. The pulling of casing to abandon started some time ago when it was decided to drill deeper in an attempt to test the Wilcox sand. However, the string of 4¾-inch parted and the next objective could not be reached. It topped the Mississippian at 4,830 feet. It had small gas at 1,400-1,500 feet in sand; show of oil and gas at 3,480-90 feet, and a show of oil at 4,700 feet.

Fremont County

Waterville Oil Co.'s No. 1 State, SE NW, Section 16-18-69, north of Florence, is drilling at 1,591 feet with sands in the Pennsylvanian as the objective.

Park County

South Park Oil & Gas Co.'s No. 1 Esche, SE NW, Section 5-9s-76, Muleshoe Dome, is shut down at 2,360 feet to run 8¼-inch casing, and the South Park Oil Co.'s No. 1 Milligan, NE SE, Section 13-8s-76, Jefferson district, is shut down at 2,065 feet to run and carry 6⅝-inch. Cavy ground was encountered after setting 8¼-inch at 2,015 feet.

Montezuma County

Fred C. Haller's No. 1 Stephens, Section 33-36n-14w, Point Lookout Dome, topped the Dakota at 745 feet and had some gas.

La Plata County

Murchison Oil Co.'s No. 1 Doescher, SW NW, Section 29-33-13, Dry Mesa, is repairing water lines and preparing to resume at 1,125 feet.

Rio Blanco County

California Co.'s No. 1 California-Raven, NW SE, Section 30-2n-102, Rangely Dome, a rotary test to the Pennsylvanian, is drilling at 457 feet, and Magnolia Petroleum Co.'s No. 1 Maddock, C NW SE, Section 9-2s-96, Picenace Creek, is drilling at 125 feet in sand.

Larimer County

The corrected location of P. J. Mosher, Inc.'s No. 1 Meade, Berthoud Dome, is C S half SW SE, Section 17-4n-69. It is shut down for water after spudding.

WYOMING

Natrona County

Midwest Refining Co.'s No. 11 Middy, C NE NE, Section 23-35-79, Midway Dome, has not yet secured a satisfactory test of the Muddy sand. A plug was set below the sand to shut off bottom water and the hole was cleaned to 5,935 feet when caving began; 27 sacks of cement were dumped into the hole in an effort to stop the caving. The well is flowing water and oil.

Big Horn County

Ohio Oil Co.'s No. 1 Smith, NE SE SE, Section 33-56-97, Garland Dome, was showing for a small gas well at 1,728 feet when drilling stopped to cement 13-inch at 1,707 feet before drilling deeper into the sand. Utah Southern Oil Co.'s No. 3 Government, NE cor. SW, Section 29-56-97, is drilling at 3,880 feet in the Madison lime and has about 250 feet to go to reach the big pay encountered in the Ohio Oil Co.'s No. 1 Easton. F. T. Griffith, trustee's No. 1, SE NE SE, Section 29-56-97, is drilling in the Embar at 3,600 feet. It was estimated to be making 40,000,000 feet of gas in the top of that formation which was mudded to continue to the Madison.

Washakie County

Ohio Oil Co.'s No. 1 Strothers, SW SE NW, Section 19-45-92, Neiber Dome, is drilling at 5,530 feet. The Frontier is expected at around 6,600 feet. While the contract with Grebo Royalties, Inc., calls for a 7,000-foot hole, it is reported that the contract with the Noble Drilling Co. calls for a 7,500-foot test.

Park County

Midwest Refining Co.'s No. 24 Rosenberg, NE SE NE, Section 26-58-98, Frannie Dome, is drilling at 406 feet in black shale.

Fremont County

Producers & Refiners Corp.'s No. 2, NW SE NW, Section 33-34-92, Muskrat Dome, is shut down for orders at a total depth of 5,660 feet. The 10-inch was cemented at 4,906 feet, at which depth a water sand was reported. Gas was found in the Frontier, but nothing of importance below that horizon. Same company's No. 10, SE NW SW, Section 14-32-95, Big Sand Draw, is bottomed at 5,351 feet and preparing to cement back. It tested all the sands in the Sundance and will plug back to the gas in the upper horizons and save as a gas well.

Carbon County

Lost Soldier Producing Co.'s No. 1, NE NE, Section 25-56-88, Mahoney Dome (Schulback, Dane and others), is bottomed at 3,772 feet and fishing for tools. It has considerable oil in the hole and a flow of 13,000,000 feet of gas. It has about 180 feet to go to reach the top of the red beds and expects to test a sand in the bottom of the Sundance mapped 80 feet thick. The Morrison and Sundance formations are estimated to be 685 feet thick. Producers & Refiners' No. 1, NE SE NE, Section 7-25-86, South Ferris, is drilling at 2,440 feet in sandy shale. The Dakota is the objective. Same company's No. 1, SW cor., Section 19-20-83, Overland Dome, is bottomed at 590 feet and circulating to free tools. The 4¾-inch is at 490 feet. Midwest Refining Co.'s No. 27 Union Pacific, NW SE SE, Section 11-20-81, Elk Mountain, is drilling on rock and iron at 2,610 feet to straighten hole.

Sweetwater County

Mountain Fuel Supply Co.'s No. 1 Cappers, SW cor. NE, Section 2-19-104, North Baxter Basin, is trying to plug off bottom water at a total depth of 3,660 feet. The hole is bailing 1 bbl. of oil and several hundred barrels of water from the top of the Sundance.

Vermillion Oil Co.'s No. 1, SW cor., Section 16-12n-99, half a mile north of the Colorado line, on the Hiawatha Dome, has a flow of gas estimated at 1,500,000 feet at 3,456 feet. One report says the gas is coming from a stray sand at the contact of the upper and lower Wasatch. President Warren Hoggatt expressed the opinion it is the same horizon that produces gas in wells higher up on the structure.

Laramie County

Prairie Oil & Gas Co.'s No. 1 Warren, SE NE SE, Section 22-13-68, southwest of Cheyenne, is drilling at 131 feet in granite gravel.

Converse County

Continental Oil Co.'s No. 50 Whiteside, NW SW SW, Section 9-33-76, Big Muddy Field, which is being deepened from the Wall Creek at 3,207 feet to the Lakota, is drilling at 3,382 feet in shale after changing over to rotary.

Niobrara County

Indian Petroleum Co.'s No. 1, NW NE, Section 7-35-65, Lance Creek, which is being deepened to the Sundance at 4,200 feet, is drilling at 4,000 feet.

Weston County

The report that Julius Peters of Great Falls, Mont., and associates had taken over No. 1 Witzell, SE NW, Section 30-46-64, Fiddler Creek, to complete was mistaken in identifying one of his associates. The Mr. Cook, who is associated with Mr. Peters, is a well-known geologist.

Two completions in the Osage Field were reported this week. Wytex Oil Co.'s No. 5 Logan McCullough, SW NE NE, Section 23-46-64, in an area where there are several good wells, cut the pay at 1,680-91 feet and the well is making 100 bbls. natural. West Osage Oil Co.'s No. 1, SE NE NE, Section 15-46-64, found the sand at 2,067-77 feet and swabbed 26 bbls. in 20 hours. Two new locations were made, both of which are rigging up. These are Lambie Oil Co.'s No. 7 Julius Bock, SE cor. NW, Section 14-46-64, and Yellowstone Petroleum Co.'s No. 1 Lundberg, NE NW NW, Section 27-46-64. Chadron-Osage Oil Co.'s No. 13, NE cor. SW, Section 14-46-64, is drilling at 600 feet.

MONTANA

Carbon County

Ohio Oil Co.'s No. 1 Montana Industrial, SE SW NE, Section 11-7s-21, Dry Creek Dome, so far is disappointing, though it is understood the company is not willing at this time to admit it is a dry hole. It is reported bottomed at 5,581 feet, believed to be the top of the Lakota, the producing horizon in the discovery well just to the south of this location. The discovery topped the Lakota at 5,415 feet. Drilling is being delayed by a fishing job. In the Montana Industrial well the Dakota contained a slight show of oil and gas and there was a small show of both at the present depth. The log of the well indicates it is up against a fault and this probably accounts for the results. The Ohio company is drilling a little farther to the north in its No. 1 Souders, C SW SE, Section 2-7s-21, which is making hole at 4,025 feet, and its No. 1 Chapman, C SW SW, Section 2-7-21, cemented the 15½-inch at 452 feet. Carbon Oil & Gas Co.'s No. 1 Armstrong, SW cor. NW, Section 7-7s-22, to the east of the discovery well, is bottomed at 2,595 feet and rigging up rotary.

Glacier County

The most active spot in Montana is the Cut Bank area in Glacier County where L. B. O'Neill, trustee, is drilling a series of wells for a gas supply for the Montana Power Co.'s gas line to Butte and Helena. The status of these operations follows:

No. 1 State, C SW SW, Section 36-36n-5w, rigged and ready to spud; No. 1 Hughes, C NE NE, Section 3-35-5w, rigging up; No. 1 Berger, C SE NE, Section 2-35-5w, rigged and ready to spud; No. 1 Schneider, C NE SE, Section 32-36-5, cementing the 15½-inch at 550 feet; No. 1 State, C SE NW, Section 34-36-5, cleaning out after cementing the 15½-inch at 570 feet; No. 1 State, C NW NW, Section 33-36-5, drilling at 950 feet, and No. 1 Taylor & Spikes, C SW SW, Section 35-36-5, drilling at 1,400 feet.

Montana Utilities Co.'s No. 1 Hogland, NW cor. SW, Section 13-34-6w, has rig up and is moving in tools. Fulton Petroleum Co.'s No. 1 Blackfeet, SW NE

(Continued on Page 122)

NEW YORK-PENNSYLVANIA GAS AREA BUSIEST EASTERN FIELD

CORNING, N. Y., June 20.—The busiest field east of the Mississippi River is the gas area north of this city in Yates and Schuyler Counties and south of it in northern Tioga County, Pennsylvania, with wildcat wells being drilled in Bradford County, Pennsylvania, and Chemung and Steuben Counties, New York.

Fifty-eight gas wells have been completed in the field, 46 of which are in the northern field and 12 in the Tioga County Field. It is estimated that the Wayne, New York, Field has a potential production of 101,000,000 feet of sweet gas, and the Dundee Field, also in New York State, is good for 127,000,000 feet of sulphur gas. The Tioga Field is credited with a potential of 221,000,000 feet from its dozen wells.

All the gas comes from the Oriskany sand, the top of which lies at about 1,700 to 2,000 feet in the northern field and at about 4,000 feet in the Tioga Field.

In spite of the greater flow from the Wayne Field, the Tioga is undoubtedly the larger and more substantial area. This field has not been proven as yet and the potential capacities of Lawrence Township and surrounding township fields are not known. Acreage under lease and present number of wells now drilling is larger in the Tioga Field. While of the 40 some wells now being drilled in Tioga, many will be dry holes, the wildcatting is being done here first to determine the field limits. The procedure has been practically the opposite in Dundee-Wayne areas.

The dominant companies are, to present appearances the Belmont Quadrangle Co. in the Wayne Field and probably the Lycoming Natural Gas Co. in the Tioga Field. This latter, however, is by no means a certainty as any one of several companies in that field may step to the fore within a short time.

To date only one large merger has been reported in either field, although a number of gas sales contracts have been formed between the larger companies and others in the field. The largest transfer of management came in the Lycoming Natural Gas Co.-Benedum Trees combine of April.

Extends Across Lake

The gas area in Schuyler County was extended considerably with the tapping of pay sand in a wildcat well between the villages of Hector and Valois on the east side of Seneca Lake, the Dundee Field being on the west side. This new discovery uncovered sand at 1,617 feet and a showing of gas, believed to have been less than 1,000,000 feet, was developed at that depth. This is the most easterly gas showing in New York State. Cady & Co. are drilling a wildcat at Reading Center, on the west side of the lake and between the Hector-Valois prospect and the Dundee Field.

The Eastern States Natural Gas Co. following the completion of its No. 1 Brown, a 5,000,000-foot well in the Dundee Field, will move the rig from the Brown to the Millard farm a short distance north of Wayne village.

The Lycoming Natural Gas Co. will begin work on its pipe line from the Tioga Field to Syracuse, N. Y., next week, when the first of the 30-inch road crossing lines or conduits will be laid. Eighty per cent of the rights of way have been arranged for. The company has yet to sign up some of the farmers in the northern district. The Lycoming Natural Gas Co. has 100,000,000 feet of gas shut in in the Tioga Field and is drilling several other wells. Not until these wells are in is any work expected to be done on the 10-inch gathering lines and the 20-inch main line. It is expected that all rights of way will be closed by the time the drilling wells are completed.

The Belmont Quadrangle Drilling Co. completed its No. 1 Hulda Gardner north of the village of Wayne, N. Y. It came in at approximately 1,700 feet and made 2,500,000 feet of gas the first 24 hours. Several other wells in the Wayne area are due for completion within the next week.

Curtailment in California Is Effective

Lack of Co-operation on Part of Few Producers Prevents Success of Movement in Several Fields, Especially Santa Fe Springs

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., June 20.—Curtailment of production in California is gradually becoming more effective, although a few fields are still producing in excess of their respective allotments established under the new curtailment program which went in effect June 1. Three fields, Belridge, Playa Del Rey and Santa Fe Springs, are contributing most of the excess production at the present time, but it is believed that the increase in crude oil prices made this week will stimulate further curtailment work. Playa Del Rey, with a maximum allowable of 16,100 bbls. per day, was producing 24,500 bbls. per day late this week despite attempts of the Oil Producers Sales Agency and the umpire's office to curtail production and thus stabilize conditions. It is generally admitted that the permanency of the existing price structure is dependent on successful effective curtailment and for this reason concerted attempts are under way to line up approximately 15,000 bbls. of crude oil per day in the Playa Del Rey Field which up to the present has not been under curtailment.

The oil being produced by the Belridge Field in excess of its maximum allowable is due to the completion of an unusually large well by the Reward Oil Co. on June 11. This well is being gradually beaned down but in spite of this it does not appear probable that production of this field can be reduced to its current allotment of 6,500 bbls. per day. This is particularly true in view of the fact that additional wells are expected to be completed in this field within the next 30 days. This tends to indicate that the general committee on curtailment will increase the allowable maximum at its next meeting. This deduction is made in spite of the fact that the Belridge Field was recently put in the group of fields having fixed allotments.

Santa Fe Springs is producing 63,500 bbls. per day, or approximately 8,500 bbls. in excess of its maximum allowable of 55,000 bbls. A part of this excess is due to the inability of the umpire to secure co-operation on the part of a group of producers. It is believed probable, however, that the production of this field will be brought down to within striking distance of the field's allotment as soon as the general curtailment becomes more effective in other areas.

Situation in Other Fields

Long Beach operators, recognizing the necessity of more stringent curtailment and desirous of securing better prices for crude oil, have reduced current production to 76,000 bbls. or approximately 500 bbls. below the field's maximum allotment of 76,500 bbls. daily. Kettleman Hills has only exceeded its maximum allowable production of 60,000 bbls. for only a few days since the first of June. There is a possibility, however, that considerable difficulty may be experienced in holding the production of this field to 60,000 bbls. per day for the rest of 1931, as there are a number of new wells scheduled for completion within the next 30 or 60 days. The curtailment committee has been endeavoring to formulate a definite program for this field but the agreement up to the present time is only of a tentative nature. In addition to the fields mentioned, there are several other areas producing in excess of the established maximum, but this is of a minor character as the excesses are for the most part around 100 bbls. per day.

Gov. James Rolph, Jr., vetoed Assembly Bill No. 4 a few days ago and in doing so definitely removes any possibility of tideland drilling at Huntington Beach. This bill proposed to transfer the State's title of tidelands to the city of Huntington Beach in order to enable the municipality to lease the tidelands in question for development work. Revenue accruing from production on the Huntington Beach tidelands was to be split with the State of California on a 50-50 basis. Considerable opposition developed to the proposal to lease Huntington Beach tidelands for drilling, the principal contention of opponents being that developments work out beyond the tideland might contaminate adjacent bathing beaches. The tidelands involved would undoubtedly have been found commercially productive as a substantial portion of the Barley Patch structure extends out into the ocean. This is evidenced by the fact that the Standard Oil Co. has a string of wells paralleling the ocean front within throwing distance of the surf. One of these wells has a rated daily potential of approximately 900 bbls. per day, although the company has it beaned back to within a few hundred barrels.

The circulation of referendum petitions against Will Sharkey's compulsory curtailment measure started a week or so ago has resulted in considerable discussion among California operators. These petitions, which are being circulated by a professional agency, will require approximately 60,000 signatures in order to prevent enforcement of Senate Bill No. 362. If the necessary number of valid signatures are secured, the Sharkey Bill will be inoperative until it is passed upon at the next general election in 1932. This is particularly important because those in close touch with the situation do not believe that it will be possible to effect stabilization except by compulsory curtailment. Those sponsoring the referendum petitions now being circulated apparently fail to recognize the threat presented by Kettleman Hills, Lost Hills-Belridge and other dormant fields.

Kettleman Hills

The Standard Oil Co. completed a new well in the North Dome of Kettleman Hills during the past week and is making preparations to finish another potential producer shortly. The Standard's new completion was No. 85-29J, a direct offset to the Superior's No. 2 Huffman in Section 29-21-17. This new well was brought in flowing 9,485 bbls. of clean 45.1 gravity oil and 24,000,000 feet of natural gas per day from 8,173 feet. This hole was completed with a 9⅝-inch water string landed and cemented at 6,846 feet and 6⅝-inch oil string carrying 974 feet of perforated. The Standard started beaning back this new well late in the week and will probably effect a further reduction within the next 10 days. The completion of this new well is of particular significance in view of the fact that the Superior's No. 2 Huffman has been beaned back since completion from 20,000 bbls. per day to 1,250 bbls. If the Standards permits No. 85-29J to continue on production indefinitely, and this would seem to be the logical procedure to follow, the Superior would undoubtedly open up No. 2 Huffman and restrict the production of No. 1 Huffman. The Superior's production has been averaging approximately 12,000 bbls. per day for the past several weeks, of which 11,000 bbls. is being produced by No. 1. No change has yet been made but it is believed that No. 2 Huffman will be opened up to 11,000 bbls. per day and No. 1 beaned back to approximately 1,000 bbls. This ratio may ultimately be changed, however, as the Union Oil Co.'s No. 1 Amerada King, an offset to No. 1 Huffman, is scheduled for completion around the first of July.

The Standard's new completion was the seventeenth well to be finished in the North Dome at Kettleman Hills. Of these 16 are still producing, one having recently been killed preparatory to being deepened from the Elliott gas zone to the Ochsner oil zone. Two more, No. 88-2P and No. 1-12P of the Kettleman North Dome Association, are also scheduled to be taken off production and deepened to the lower oil zone if possible. The association has already let contracts for the control of these wells, which present unusual hazards because of the high pressures encountered and the present condition of equipment. Work is progressing very satisfactorily on the new tank farm of the Kettleman North Dome Association and the four 55,000-bbl. steel tanks now in course of construction should be ready for use early in July.

Shell Well Looks Better

The Shell Oil Co.'s No. 1 Dixon, located out on the north flank in Section 36-21-17, has shown a decided improvement during the past several weeks and this well is expected to register substantial production upon completion, which is tentatively scheduled for some time along about the middle of July. The bit in this hole was rotating ahead a few days ago at 8,725 feet and the well log shows a little over 1,000 feet of oil sand cored up to the present time. It is the present intention to finish this well at approximately 9,000 feet. The North American's No. 1 Blauvelt in Section 36-21-17 is still in the brown shale at 8,000 feet and it begins to look as though this well will have to be carried down well below 9,000 feet before completion as there appears to be a very definite thickening of brown shale at this point. The North American has suspended drilling operations on No. 1 Signal, another well in this same section, pending the outcome of drilling on No. 1 Blauvelt.

The Petroleum Securities has not yet passed through the brown shale in No. 1 Burbank, a test well being drilled in the Middle Dome of the Kettleman Hills structure, but is expected to do so within the next few hundred feet. The belief that the Petroleum Securities will encounter the top of the oil sand in No. 1 Burbank somewhere around the 7,300-foot level is predicated on correlation work between the North and Middle Domes. The Standard Oil Co.'s No. 6-29V, an offset to No. 1 Burbank of the Petroleum Securities in the Middle Dome, is rotating ahead at 5,400 feet in a gray sandy shale. These two wells are of unusual interest at the present time because of the possibilities presented by the Middle Dome. This structure has perfect closure and there is every reason to believe that commercial production will ultimately be developed. The South Dome, on the other hand, does not look particularly encouraging, in fact the outlook is decidedly unfavorable. It might not be amiss to mention, however, that the South Dome is entirely out of the picture as a 10,000 or 12,000-foot hole on top of the structure might change the entire outlook.

Ventura Avenue

Three wells were put on production in the Ventura Avenue Field during the past week and a check indicates the probable completion of one more within the next 15 days. The Shell Oil Co. accounted for two of the trio of wells finished at Ventura Avenue this week by completing Nos. 61 and 63 on the Taylor lease. The former, bottomed at 7,000 feet and finished with a 6⅝-inch oil string, was brought in flowing 810 bbls. of 28.1 gravity oil, while the latter, finished at 6,397 feet, was completed flowing 1,940 bbls. of 27.6 gravity oil per day through a 1¼-inch bean under a pressure of 1,160 pounds. The Associated recompleted No. 54 Lloyd flowing 160 bbls. of 29.6 gravity oil and 300,000 feet of natural gas per day from 7,275 feet. The completion of these three wells reduces the number of drilling wells in the Ventura Avenue Field to 11 active projects. Development work in this field has shown a consistent substantial decline during the past several months and, while both the Shell and Associated will spud in additional holes during the remainder of this year, drilling expenditures will be substantially below those of the past few years.

The Chanslor-Canfield Midway Oil Co.'s No. 2-A Hobson, a wildcat located about midway between the Rincon and Ventura Avenue Fields, failed to show commercial production on a test of sev-

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	68,690
Fuel oil	.....	.....	.....	.....	.....	71,950
Diesel and gas oil	.....	.....	.....	.....	592,230	1,919,152
Gasoline	129,529	18,504	80,540	11,506	6,647,750	7,768,520
Kerosene	.....	.....	.....	.....	41,512	.....
Coastwise—						
Crude oil	380,101	54,300	521,934	74,562	9,865,384	7,010,195
Fuel oil	73,549	10,507	225,839	32,263	6,263,566	8,129,597
Diesel and gas oil	.....	.....	27,639	3,947	755,357	859,340
Gasoline	135,546	19,364	549,712	78,530	6,083,233	5,287,472
Kerosene	.....	.....	7,414	1,059	164,442	71,497
Naphtha distillate	.....	.....	.....	.....	4,952	.....
Exports—						
Crude oil	234,057	33,437	153,408	21,915	3,279,496	2,932,993
Fuel oil	206,609	29,514	258,735	36,962	6,887,011	8,534,264
Diesel and gas oil	113,903	16,272	83,601	11,943	1,824,250	2,169,282
Gasoline	52,864	7,552	64,243	9,178	4,446,655	7,112,112
Kerosene	.....	.....	85,550	12,221	784,456	1,835,171
Lubricants	.....	.....	.....	.....	18,978	10,082

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	88,280
Gasoline	66,750	9,536	.....	.....	405,469	641,680
Lubricants	7,975	1,139	.....	.....	21,990	5,866
Coastwise—						
Fuel oil	83,238	11,891	83,087	11,870	1,923,827	1,708,423
Diesel and gas oil	.....	.....	.....	.....	160,172	152,544
Gasoline	76,977	10,997	42,691	6,099	1,317,712	1,897,785
Kerosene	8,072	1,153	4,630	660	130,510	119,387
Naphtha distillate	.....	.....	.....	.....	49,780	.....
Exports—						
Crude oil	30,180	4,311	.....	.....	107,736	3,075
Fuel oil	.....	.....	.....	.....	638,876	481,000
Diesel and gas oil	.....	.....	.....	.....	246,353	231,990
Gasoline	66,594	9,371	152,205	21,744	1,939,628	1,946,896
Kerosene	11,790	1,684	8,070	1,153	420,002	269,514
Lubricants	.....	.....	.....	.....	.....	18,672
Naphtha distillate	.....	.....	20,100	2,871	20,100	.....

REO QUALITY IN THE LOWEST PRICED TRUCK FIELD

NEW 1½ TON REO SPEED WAGON

...with a wide range of Reo bodies to fit your needs

$625

Four-Cylinder $625, Six-Cylinder $725
Chassis f. o. b. Lansing, Michigan
DUAL WHEELS EXTRA

In the entire field of low price trucks, only the new 1½-Ton REO SPEED WAGONS embody all these excelling features:

Powerful 4 and 6 cylinder truck engines with *five* and *seven* bearing crankshafts; maximum piston displacements; full force feed oiling even to the piston pins; chrome nickel cylinders that wear seven times longer; extra large 7" deep frames; full floating rear axles; long, heavy springs; Spoksteel wheels; and large internal, self-equalizing hydraulic brakes!

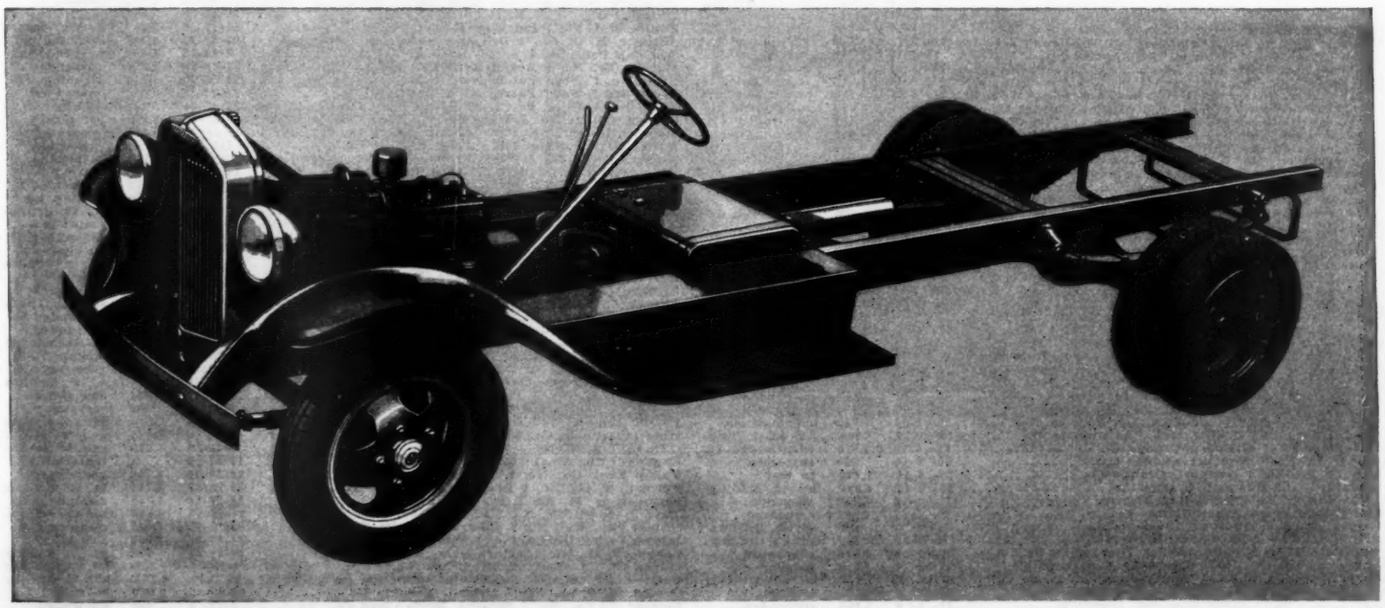
Wheelbases are longer, with greater loading spaces back of the cab. With this sturdy chassis, Reo is prepared to supply every popular type of panel, stake, express or dump body — also special types for special needs. Prices are low and quality extraordinary.

A drive under load — over test routes of your own choosing — will tell more about the smooth, powerful action of these new Speed Wagons than words could possibly convey. Note carefully the savings in time and gas — and the *exceptional* size and strength of vital parts.

Any Reo salesman will gladly show you a portfolio which proves, by illustrated life-size comparisons of parts, the real and indisputable margin of Reo superiority.

By all means, see this SPEED WAGON before you buy!

REO MOTOR CAR COMPANY
LANSING — TORONTO



eral days' duration and the hole is accordingly being plugged back by stages from 10,030 feet. The failure of this deep test to register commercial production did not come as a surprise as the well failed to show any great kick during the course of work. The Pacific Western Oil Co. will probably conclude a production test on well No. 8, located on tideland permit No. 92 in the Elwood Field of Santa Barbara County some time during the next day or two. This project has been finished at 3,408 feet and preparations are already under way to conduct a swabbing test. The Barnsdall and Rio Grande's No. 1 Bishop-Evans, a deep Sespe test in the Elwood Field, is being held up with mechanical trouble resulting from the loss of 30 feet of 4½-inch drill pipe. The Irvine Oil Co.'s No. 1 Lowe, a drilling project in the Santa Barbara Mesa Field, tested wet for the second time at 1,985 feet and an additional plug will be placed on bottom. The Palisades Petroleum has just started to run casing in No. 3 Meigs, a new well in this district, and an early production test is anticipated.

Lost Hills-Belridge

The Universal Consolidated Oil Co., a subsidiary of the Richfield Oil Co., got another wet job in No. 49, a Temblor test in the Lost Hills Field of Kern County at 5,654 feet, and the company has decided to core ahead. The General Petroleum's No. 1,301 at Lost Hills is rotating ahead in a brown shale at 3,650 feet. The Reward Oil Co.'s recent completion in the North Belridge Field of Kern County has been holding up with clocklike regularity and the company is thereby obliged to artificially reduce production more severely than would have been the case if there had been a normal decline registered. It is the present intention to pinch this well back to approximately 2,500 bbls. per day. The Continental Oil Co. landed a string of casing in No. 2 Result a few days ago and this well will be tested out probably some time within the next 10 days. Based on the result of drilling on adjacent property, the Continental's No. 2 Result should not be good for more than 1,000 bbls. per day. The Standard is also expected to make an early production test of a drilling project in the North Belridge Field, as its No. 2 McPhail is making a test to determine the effectiveness of a shutoff attempted at 5,470 feet.

Midway-Sunset

It has been almost a year since there has been sufficient development work under way in the Midway-Sunset Field of Kern County to justify specific comment. Drilling operations in this area have been negligible during the past several months and there is nothing to indicate that there will be any change in the status of this district. The Chanslor-Canfield Midway Oil Co. is putting the finishing touches on No. 89, a new well in Section 8-32-23, and a production test is scheduled to be made within the next week. This will conclude the company's work in the Midway-Sunset area for the present. The only work being done in the Maricopa Flats section of the Midway-Sunset Field consists of a clean-out job on a producing well which sanded up a week or two ago. The Birch Oil Co. is making preparations to retest No. 2 Maricopa, a deep test in Section 7-11-23, which recently failed to show commercial production at 9,000 feet. Drilling operations are practically negligible in both the Mount Poso and Round Mountain Fields of Kern County and no resumption of drilling is anticipated in view of existing curtailment work and the prevailing low price for crude oil.

Huntington Beach

The most important well under way in Southern California at the present time is perhaps W. E. McCaslin's No. 17 Transport, a deep test in the town lot section of the Huntington Beach Field. The importance which attaches to this well lies in the fact that a new deep zone is believed to have been encountered at 7,823 feet. A little over 30 feet of hard fine grain gray oil sand has been logged up to the present time and operators are watching the outcome of work with particular interest because there is considerable gas in evidence. The sand found in this well is quite unlike that encountered in any other Los Angeles Basin fields and the impending production test will consequently be watched with extreme interest. The Superior Oil Co. has temporarily suspended all deep zone exploratory work in this field and its wells, one of which is believed to have encountered a new zone, will remain inactive.

There were no completions listed in either the Long Beach or Playa Del Rey Fields during the past week and with drilling operations at a minimum future completions in these districts will be few and far between. There are only 17 incompleted drilling projects under way in the Long Beach Field at the present time and nine at Playa Del Rey. This decline in development work is expected to result in a consistent drop in production. Heretofore the completion of new wells has offset the normal decline in production but with drilling operations reduced to a minimum the effect on field production will be correspondingly less.

FIELD METHODS OF TREATING OIL IN NORTH TEXAS-SOUTH OKLAHOMA

By C. R. Webb
Production Engineer, North Texas Division, Empire Gas & Fuel Co.*

Perhaps the most troublesome conditions we have had to contend with in this district have been those on our Waggoner leases in Wilbarger County, Texas. Here, when the field was flush, it was quite the usual thing for a flow string of 2½-inch tubing to become completely clogged up with a deposit that I shall speak of as wax. This deposition did not take place to any extent except near the top of the flow string and usually extended down as much as 200 to 300 feet.

The usual method used to remove the deposits from the flow string was by the use of a paraffin cutter which was spudded by means of a tractor equipped with a winch and sand line and after more or less work, the tubing was thus cleared. If the tubing became too badly clogged, it was sometimes necessary to pull it out of the well and melt out the wax deposit.

A sample of the deposit was sent to our chemical laboratory at Oil Hill, Kans., and was found to be composed of:

Silica—Si O_2	25.75%
Iron oxide—Fe_2O_3	2.62%
Calcium chloride	2.96%
Sodium chloride (salt)	57.85%
Wax (petroleum ether residue)	7.79%
Total	98.07%

Mostly insoluble salts making up the remaining 1.93%.

Our analyzing chemist, H. P. Hohendel, further states that the deposit consisted chiefly of small irregular shaped particles of sand and salt cemented with oil. This type of deposit is unusual so far as our operating experiences are concerned. A small amount of water with considerable gas might produce such a scale as an evaporation phenomena, and in that case, flushing occasionally with several barrels of fresh water should prove helpful in the case of pumping wells.

Also it has been said that paraffin will not adhere so readily to a surface so long as it is wet with water instead of oil, thus prevention of deposition of paraffin might be prevented by pumping considerable water with the oil, especially

(Continued on Page 98)

*Before Wichita Falls, Tex., Chapter A.P.I., Division of Production.

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S-T-R	Depth	Status
Olympic Realty Corp., No. 1 Barnes, Los Angeles Co.	14- 2-15	6,078	suspended
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	6,510	br. sh. drilling
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	6,238	suspended
Mesmer City Corp., No. 1 Mesmer, Los Angeles Co.	24- 2-16	5,995	cleaning out
Dwyer & Becker, No. 1 Compton, Los Angeles Co.	17- 3-13	4,520	suspended
Allison Synd., No. 1 Baldwin, Los Angeles Co.	8- 2-14	5,110	suspended
Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	6,525	suspended
Cal. Ventura Oil Co., No. 1 Hermosa, Los Angeles Co.	31- 3-14	3,396	suspended
Cal. Ventura Oil Co., No. 2 Hermosa, Los Angeles Co.	31- 3-14	3,300	suspended
Cal. Oilfields Corp., No. 1 Hermosa, Los Angeles Co.	31- 3-14	2,560	suspended
Carniel Oil Corp., No. 1 Hermosa, Los Angeles Co.	31- 3-14	3,114	suspended
Hermosa Expl. Co., No. 1 Hermosa, Los Angeles Co.	31- 3-14	3,059	cleaning out
Kellogg, W. R., No. 1 Hermosa, Los Angeles Co.	6- 4-14	3,078	75 bbls. daily
Westwood Pet., No. 1 Hermosa, Los Angeles Co.	6- 4-14	3,200	70 bbls. daily
Tulsa Oil Co., No. 1 Hermosa, Los Angeles Co.	6- 4-14	3,060	testing
McMahon & McDonald, No. 1 Watts, Los Angeles Co.	12- 3-14	4,665	suspended
Thorpe Pet. Co., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	3,745	suspended
Alondra Oil Co., No. 1 Hawthorne, Los Angeles Co.	23- 3-14	rig	rigging up
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	2,630	sd. sh. drilling
York & Smullin, No. 1 Watson, Los Angeles Co.	30- 4-13	4,735	cemented
Wilmington Consd., No. 1 Watson, Los Angeles Co.	17- 4-13	1,012	suspended
Pedro Pet. Corp., No. 1 San Pedro, Los Angeles Co.	14- 5-14	....	location
Brubaker, W. O., No. 1 Van Nuys, Los Angeles Co.	11- 2-15	2,700	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	3,200	suspended
Arden Oil Co., No. 1 Puente, Los Angeles Co.	16- 2-10	3,325	suspended
D. & B. Oil Co., No. 1 Puents, Los Angeles Co.	3- 2-10	4,620	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	36- 2- 9	1,277	hd. sd. drilling
Marcel Pet. Co., No. 1 Puente, Los Angeles Co.	31- 2- 9	3,100	suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,270	suspended
The Texas Company, No. 1 Montebello, Los Angeles Co.	4- 2-12	4,303	hd. sd. drilling
Weist Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	4,542	rebuild rig
Hammor, Fred, No. 1 Alhambra, Los Angeles Co.	24- 1-13	3,412	suspended
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	2,280	suspended
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26- 1-17	763	cleaning out
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,960	hd. sd. drilling
Ness Pet., No. 1 Newport, Orange Co.	31- 6-10	4,910	suspended
Hall, H. L., No. 1 Newport, Orange Co.	20- 6-10	790	suspended
Gesell, T. F., No. 1 Newport, Orange Co.	29- 6-10	1,470	to test
Standard, No. 1 Newport, Orange Co.	26- 6-10	4,990	hd. sd. drilling
Western Gulf, No. 1 Santa Ana, Orange Co.	12- 3- 8	3,267	suspended
Gleck Oil Co., No. 1 Sunset Beach, Orange Co.	28- 5-11	4,800	cemented
Beck, F. A., No. 1 Corona, Riverside Co.	8- 4- 6	450	sd. sh. drilling
Beck, F. A., No. 1 Beaumont, Riverside Co.	1- 3- 1	520	sd. sh. drilling
Grey, H. H., No. 1 Redlands, San Bernardino Co.	35- 1- 2	2,392	suspended
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519	suspended
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	4,975	hd. sd. drilling
South Bay Oil Co., No. 1 Border, San Diego Co.	31-18- 2	....	location
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 8- 8	5,250	suspended

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S-T-R	Depth	Status
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-35	6,760	reaming
Barnsdall, No. 1 Gato Ridge, Santa Barbara Co.	9- 8-32	6,510	cleaning out
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-33	2,670	sd. sh. drilling
Smith, W. E., No. 1 Lompoc, Santa Barbara Co.	18- 7-34	100	suspended
Zaca Oil Co., No. 1 Los Olivas, Santa Barbara Co.	20- 7-31	rig	rigging up
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas—shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	gas—shut in
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	5,273	testing
General Pet., No. 133 Goleta, Santa Barbara Co.	21- 4-28	2,030	suspended
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	2,053	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	2,047	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,931	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	2,051	suspended
Boles Oil Co., No. 140 Goleta, Santa Barbara Co.	22- 4-28	1,040	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	1,035	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	2,012	suspended
U. S. Pet. No. 143 Goleta, Santa Barbara Co.	20- 4-28	1,019	suspended
El Camino, No. 149 Goleta, Tideland, Santa Barbara Co.	22- 4-28	1,035	suspended
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	4,191	suspended
Bellview Oil Co., No. 159 Goleta, Santa Barbara Co.	24- 4-29	2,099	suspended
Cochran, J. H., No. 1 Naples, Santa Barbara Co.	7- 4-29	5,134	cleaning out
Johnson, George, No. 1-A Goleta, Santa Barbara Co.	19- 4-37	3,780	Sespe form.
Sovereign Oil Co., No. 1 Guadalupe, Santa Barbara Co.	20-10-35	5,500	redrilling
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
C. C. M. O. Co., No. 2-A Rincon, Ventura Co.	23- 3-24	10,030	testing
Continental, No. 1 Rincon, Ventura Co.	23- 3-24	4,684	sd. sh. drilling
Pure Oil Co., No. 1 S. P. Canyon, Ventura Co.	15- 4-21	2,591	suspended
Superior Oil Co., No. 1 Sespe, Ventura Co.	14- 4-21	7,060	fishing
San Pedro Oil Co., No. 2 Sespe, Ventura Co.	18- 4-21	3,410	cleaning out
Magu Synd., No. 1 Oxnard, Ventura Co.	17- 1-21	4,382	sd. sh. drilling
Mex Cal Oil Co., No. 1 Conejo, Ventura Co.	12- 1-20	185	suspended
Hansen Pet., No. 1 Conejo, Ventura Co.	24- 1-20	230	suspended
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	7,000	to recement
Kent & McDonald, No. 1 Temblor Hills, Kern Co.	3-33-22	1,702	set pipe
Calif. Oil Producers, No. 1 McKittrick, Kern Co.	30-30-22	918	sd. drilling
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	5,367	suspended
General Pet., No. 1 Belridge, Kern Co.	30-28-21	4,975	br. sh. drilling
The Texas Company, No. 1 Belridge, Kern Co.	22-27-20	5,045	suspended
Standard, No. 2 Belridge, Kern Co.	31-27-20	5,591	testing
Ohio Oil Co., No. 1 Belridge, Kern Co.	36-27-20	5,980	suspended
Continental, No. 1 Belridge, Kern Co.	36-27-20	5,250	formation test
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,222	cleaning out
Rio Cal. Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Wicker, Sy, No. 1 Arvin, Kern Co.	12-30-28	1,250	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	8,419	cleaning out
Shell, No. 2 Weed Patch, Kern Co.	29-30-29	6,410	suspended
Shell, No. 3 Weed Patch, Kern Co.	32-30-29	5,784	testing
Osborn, Colter, No. 1 Weed Patch, Kern Co.	15-30-29	3,815	set pipe
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	6,150	suspended
Mohawk Oil Co., No. 2 Weed Patch, Kern Co.	4-31-29	rig	suspended
Alpine Oil Co., No. 1 Weed Patch, Kern Co.	13-31-29	3,735	suspended
Standard, No. 1 Devils Den, Kern Co.	14-25-18	3,513	testing
Hannah, Tom, No. 1 Devils Den, Kern Co.	25-25-18	2,925	suspended
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	21-26-18	rig	rigging up
Temblor Dev. Co., No. 1 Blackwell Corner, Kern Co.	14-26-19	1,030	sd. sh. drilling
Miley, E. J., No. 1 Blackwell Corner, Kern Co.	17-26-19	rig	suspended
Shell, No. 1 Semitropic, Kern Co.	17-27-23	9,700	plug 2,550 ft.
Moran & DeCamp, No. 1 Mojave, Kern Co.	26-10-14	750	suspended
Kendall Dev. Co., No. 1 Mojave, Kern Co.	27-11- 9	511	sd. sh. drilling
Meriden Oil Co., No. 1 Antelope, Kern Co.	11- 9-15	3,804	suspended
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	6,025	suspended
Associated, No. 1 Jacalitos, Fresno Co.	23-21-15	5,350	sd. sh. drilling
Panorama Oil Co., No. 1 Carizzo, San Luis Obispo Co.	7-31-21	4,019	suspended
Trav El Oil Co., No. 1 Carizzo, San Luis Obispo Co.	7-32-22	2,030	suspended
Cities Service, No. 1 Creston, San Luis Obispo Co.	20-28-15	420	sd. sh. drilling
Paso Robles Synd., No. 1 Paso Robles, San Luis Obispo Co.	34-27-11	4,015	cleaning out
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co.	21-27-16	4,615	recemented
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	34-28-12	1,214	sd. sh. drilling
Schockley, C., No. 1 Pismo, San Luis Obispo Co.	13-32-13	3,094	suspended
Jergins, A. T., No. 1 Arroyo Grande, San Luis Obispo Co.	6-32-13	rig	suspended
Pacific Inland, Well No. 1, Monterey Co.	19-23-15	1,330	hd. sd. drilling
Irma Investment Co., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,345	gas well—idle
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-23-20	....	material
Valley Expl. Co., No. 1 Dudley Ridge, Kings Co.	20-23-20	3,750	abandoned
Purman, T. H., No. 1 Reef Ridge, Kings Co.	36-23-17	3,714	br. sh. drilling
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	cleaning out
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	6,660	sd. sh. drilling
Orinda Pet., Well No. 1, Contra Costa Co.	32- 1- 3	2,012	cleaning out
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,092	suspended
Larson, S. E., No. 1 Tulare Lake, Tulare Co.	20-24-23	983	sd. sh. drilling
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	920	hd. sd. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,165	hd. sd. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	2,530	redrilling
Sargent Oil Co., No. 1 Sargent, Santa Clara Co.	1-12- 3	rig	suspended

Snapped By The Journal's Cameras in Different Areas

1—R. L. Johnson, superintendent; R. E. Gilmore, gauger; K. B. Horton, clerk; and A. D. Vinson, foreman, Sunray refinery, Allen, Okla. 2—E. L. Wilkins, Magnolia Airco Gas Products Company, Houston, Tex. 3—W. O. Berry, Independent Pipe Line Company (Pilot Oil Company), Longview, Tex. 4—R. W. Burdett, engineering trades department, North Texas Agricultural College; and M. C. Stone, secretary-treasurer, Southwest Welding Association, Arlington, Tex. 5—K. L. Hansen, president, K. L. Hansen Engineering Company, Milwaukee, Wis. 6—George W. Black, oiler; F. P. Brown, chief engineer; L. C. Mathers, gauger; and William N. Bellah, Jr., mechanical engineer, Texas Empire Pipe Line Company, Cushing, Okla.

Cheap crude oil should put us on our guard

Because, "low crude oil prices make for less efficient refinery extraction of gasoline"

The words are those of the American Petroleum Institute committee which was named to estimate the demand for motor fuel during the coming six months

Low priced crude makes for inefficiency in two ways:

West Virginia Producers Must Curtail

Pipe Line Company Warns Them Unless Output Is Cut 30 Per Cent It May Have to Restrict Oil to Deliveries

By Staff Correspondent

PITTSBURGH, Pa., June 22. — The Oil Conservation Board of the Pennsylvania Crude Oil Producers Association has been struggling for the past year to effectively limit the production of Penna Grade crude in the four zones of the eastern fields. These four zones have been used as geographic divisions of the eastern fields and are also maintained for economic reasons, chiefly based on pipe line tariffs, and are the Allegheny, N. Y., and Bradford, Pa., zone, commonly called the upper country, the remainder of Pennsylvania, another zone, all of West Virginia, a zone by itself, and the Buckeye regions of southeast Ohio, the fourth zone. At various times there has been more or less congestion in one or the other of the zones. For the past seven months the conservation board has endeavored to bring the producers into line with a curtailment program, using the monthly runs of the spring of 1930 as a basis, and, without change in the ratio, has fixed 50 per cent for the upper country as allowable production, and 70 per cent for the other three zones.

The larger producers in all zones rapidly joined in the curtailment program, but many of the other producers refused or failed to abide by the request of the board. This refusal added to oil already surplus and in storage, and along with the drastic cuts in the price structure of Mid-Continent and Texas crudes, demoralized the market for Pennsylvania grade crude.

For the first time since 1921, the postwar depression period, the necessity of a pipe line embargo in West Virginia appears as a possibility in the near future. To forestall this, the Eureka Pipe Line Co. has notified all operators connected to its system of the present conditions in a letter dated June 15 and addressed to West Virginia producers. It reads as follows: "The overproduction of Pennsylvania crude in the territory served by the Eureka Pipe Line Co., referred to in the recent notice of the conservation committee of the Pennsylvania Crude Oil Producers, is very acute, and it is earnestly requested that the producers who have not already curtailed their production 30 per cent, take immediate steps to do so.

"The Eureka Pipe Line Co. is doing all it can to take care of the production. Its tankage is being rapidly filled and it will be but a short time before we will have to restrict our receipts of oil to the amount of our deliveries. If the producers do not aid all they can to curtail the production in West Virginia, the Eureka Pipe Line Co. will have to take action limiting the amount that will be received from each producer. (Signed) Allan T. Towl, general manager."

Except for one fairly large oil producer in southwest Pennsylvania, the past week was uneventful. There was a total of 15 wells completed, 9 of which were gassers, 2 were dry holes, and 4 were oil producers with a total new production of 112 bbls.

SOUTHEAST OHIO

There were but four reports of completions from southeast Ohio and scattered in four counties. In Coshocton County, McClay Brothers and others completed a test in the SW Section 7, Pike Township, and on the A. T. Rine farm. It was drilled in the Clinton sand at a depth of 3,290 feet and is a gasser estimated at 300,000 feet a day.

In Medina County, E. R. Edson & Son Co. continued their successful shallow drilling with No. 16 on the Archie E. Packard farm, Lot 6, Chatham Township. It was completed at 395 feet and is rated as a 5-bbl. pumper. The Ohio Fuel Gas Co. met with a disappointment on the Lincoln Taylor farm in the SW Section 3, Wayne Township, Muskingum County. The Clinton sand proved dry at 3,935 feet.

T. N. Curtis completed No. 10 on the Robert Biehl farm, Lot 125, in Fearing Township, Washington County. It is a small producer at 837 feet and will probably start pumping at about 2 bbls. a day.

WEST VIRGINIA

Among the 10 completions in West Virginia there was but one oil producer completed. It is in Lee district, Calhoun County, and is the test of the Crummies Creek Fuel Corp. on the L. G. Garrett farm. It was drilled in the Injun sand to 2,015 feet and is making 15 bbls. a day natural.

Gas Wells

In Cabell County, the Monickle Gas Co. drilled a test on the B. D. Morrison farm in McComas district to 3,578 feet in the shale. At the start it showed a gauge of about 250,000 feet a day.

There were three additional gassers completed in Calhoun County, but none of any considerable size. In Washington district, Wiseman and Jackson completed a test on the Elizabeth J. Boothe farm in the Salt sand at a depth of 1,285 feet. It is a small gas well. C. B. Lewis and others found gas at 2,095 feet and in the Injun sand in a test on the Lewis Wolverton farm in Sheridan district. It is rated good for 400,000 feet a day. In the same district the Chemical Oil Co. completed No. 3 on the Harriet Fling farm at 2,073 feet, the Injun sand, and it is a small gas well natural.

In Gilmer County, A. E. Ellis and others completed a gas well on the Harley Gainer farm in DeKalb district. It was drilled in the Injun sand and to 2,024 feet and will make a fair well. Lincoln County had two completions, both in Union district. A. F. Morris, trustee, drilled a test on the Matthias Adkins farm to 2,308 feet and it will be a fair gas well. Close by and on the James and Isiah Adkins farm, the Woodyal Gas Co. drilled No. 3 to a depth of 2,321 feet. It is a small gas well after shot.

Funk and Glover have reached 3,500 feet in drilling deeper an old No. 1 well on the Rebecca Glover farm in Mannington district, Marion County. The fifth sand was reached at 3,443 feet and extended to 3,483 feet. At 3,465 feet, a flow of about 125,000 feet was found. In Wetzel County, the only dry hole of the week in West Virginia was recorded. R. O. Hennen and others drilled a test on the Yeater and Pyles farm in Magnolia district to 2,928 feet without any showing of oil or gas.

Drilling in West Virginia

While there is still considerable activity in Calhoun County drilling operations are very much reduced. In Washington district, the Hope Natural Gas Co. is drilling at 1,775 feet in an old test on the G. B. Howell farm seeking additional pay at lower levels. In Lee district, the following work is noted: Ed Hess and others have a rig building on the John Evans farm. Creed Barker and others have reached the 1,200-foot level on the Methodist Episcopal parsonage lot, and have a rig standing on a cemetery lot belonging to the same organization. Ed Smith and others have hauled in the materials for a rig on the L. S. Force farm. On the Roy Starcher farm, the Rocksdale Oil & Gas Co. is down to 1,920 feet and this test is expected in during the week. F. F. McIntosh has reached 2,157 feet in drilling his old No. 3 on the John I. McCoy farm deeper.

The same operator has the material on the ground for No. 3 on the Fox and Morgan lease. In Sherman district, F. F. McIntosh is drilling on the Jarvis and Ulderiah tract and is down to 1,117 feet. There are two tests drilling in Center district. T. J. and A. H. Jackson have reached 1,650 feet on the T. J. Jackson farm and Walter H. Bickel is down to 805 feet in his test on the I. A. Gainer farm. Other drilling in this district consists of the following: Park Bowser has started drilling a second well on the Missouri A. Wilson farm. Godfrey L. Cabot has made a location for a third well on the Scott Umstead farm. Walter H. Bickel has abandoned his location for a third well on the John Starkey farm. In Sheridan district, C. B. Lewis and others are building a rig on the Clara B. Holbert farm. The test of the Chemical Oil Co. on the Yoak and Fluhardy farm in the same district is drilling at 1,350 feet.

Roane County

Roane County has all but suspended operations. The deep test of the United Fuel Gas Co. on the J. W. Hinzman farm in Curtis district is down to 6,810 feet. The Reedy Oil & Gas Co. has made a location for a second well on the A. J. Paugh farm. In Spencer district, the Ohio Valley Gas Corp. has part of the materials on the ground for No. 15 on the R. M. Jennings lease, and in Reedy district the Heck Oil Co. is hauling in materials for a rig for No. 5 on the H. W. Allen farm. In Harper district, the Clifton Oil & Gas Co. is getting the materials together for a third well on the J. L. Looney farm.

In Raleigh County, Godfrey L. Cabot has reached 2,575 feet in No. 5 on the Beaver Coal Co. tract in Slab Fork district, and has rigged up for a third well on the same tract, but in Trap Hill district. In Greenbrier County, the Thompson Harris Co. has shut down at 1,940 feet in its test on the Samuel Hinkle farm in Williamsburg district.

SOUTHWEST PENNSYLVANIA

Among the operations of the T. W. Phillips Gas & Oil Co. in Buffalo Township, Butler County, close to the Allegheny County line, a well was completed which revives interest in the pool developed in the late fall of 1929. This pool had several very fair producers, some starting in at 200 bbls. a day, but with the drilling of two gas wells close by which had an initial flow of several million feet a day, the pressure gradually declined. One of the wells, over a year old, is still pumping about 14 bbls. a day. About 1,600 feet away this company completed a test on the Johnson Elsenrath farm in the stray fifth sand and on striking the sand started to fill the casing. After being drilled a few feet in the sand, drilling was suspended and the well flowed 100 bbls. the first 24 hours with no evidence of any gas. Drilling was resumed the following day and on one flow the well made 30 bbls.

This was the only completion in southwest Pennsylvania during the week. Other wells are drilling, mainly in Greene County, but operations are at a very low ebb.

ENGLISH OIL MAN'S FAMILY HEARS OF OIL HERITAGE IN KENTUCKY

This is the story as published in the London Oil News:

In the days of the Regency an Englishman, Thomas Duckham, emigrated to the United States. About 1816 he appeared in Kentucky, and there acquired an estate of 30,000 acres. Some 30 years later he died without leaving a will. The discovery of oil on the property has made the title to these rights worth millions of dollars.

The story of Thomas Duckham is related by Alexander Duckham, chairman of Alexander Duckham & Co., Ltd., lubricating oil manufacturer, and chairman of Trinidad Central Oil Fields, Ltd. Mr. Duckham and his brother, Sir Arthur Duckham, are descendants of Thomas. Their sister has worked for many years in an effort to solve the riddle of the inheritance.

"Just about 100 years after the Duckham of the Regency period had appeared in Kentucky," Mr. Duckham told a representative of the Daily Telegraph, "it chanced that my brother, Sir Arthur, was playing golf in the United States. He was told by his opponent that his name was uncommon, and that there was a vast sum of money, on account of accumulated mineral royalties, awaiting the heirs of a Thomas Duckham, who died intestate.

"This Thomas Duckham was possessed of a fair amount of money, and when he reached Kentucky in 1816 he occupied himself in buying and selling land. His dealings were of a magnitude startling to minds accustomed to the comparatively small areas which change hands in our English countryside.

Deeds in His Hat

"At one time he was 'king' of an area of hundreds of thousands of acres of land. He is still remembered by a few who saw him in later years—a strange figure—a little elderly gentleman still using as headgear an old-fashioned beaver stove-pipe hat.

"This was his safe, in which he stored

Alexander Duckham

the title deeds of his property. The deeds lay next to his head, curved and bent to fit his skull, and became moulded so with the long years of confinement.

"Great sorrow fell on him in the death of his wife and only son, and he then sold practically all the vast lands which

(Continued on Page 72)

Few Completions in the Central West

One in Lima Field, Eleven in Central Ohio, and Four in the Kentucky Field. Detailed Indiana Operations

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, June 22.—In the old Lima Field of northwestern Ohio only one well was reported, McKinney & Drickles' No. 1 on the Martha and Edward Calmes farm, Section 17, Tymochtee Township, Wyandot County, which is a gas well with 952,000 feet from the Trenton lime from 1,337-67 feet. Jones & Coyle's No. 1 Charles Hoepp farm, same section, is reported shut down at 1,323 feet. Jeffries and others' No. 2 George P. Jones, Section 24, Crawford Township, same county, is also shut down at 1,340 feet. Woods and others are drilling on the C. P. Troup farm, Section 23, Pitt Township, same county.

Sheldon and others are shut down at 1,378 feet where they have a showing at 1,378 feet in No. 1 on the Frank Kritzler farm, Section 13, Cessna Township, Hardin County.

C. W. Sapp and others are reported shut down at 1,150 feet in No. 1 on the J. W. Miller farm, Section 32, Scott Township, Sandusky County.

CENTRAL OHIO

Eleven completions were reported from the Central Ohio Field, of which there were two oil wells with initial production of 31 bbls., 4 dry holes and 5 gas wells, while in new work starting there were six new locations staked and 8 wells started spudding, a total of 14.

In Lorain County the Ohio Fuel Gas Co. brought in a fair gas well in No. 1-5,489 A. D. Crocker farm, Lot 90, Columbia Township, after drilling deeper. Elyria Steel & Tube Co. is drilling No. 1 Paulson and Christensen farm, Section 6, Carlisle Township, same county.

In Medina County, Chatham Township, Edson and others' No. 20 on the Marcus A. Frank farm, Lot 20, is reported with an initial production of 25 bbls. from 407-56 feet. Edward Obermiller's test on the Minnie Metzger farm, Section 16, Liverpool Township, proved a dry hole from 2,983-92 feet. Ramage & Willis are drilling on the Pfeiffer & Warner farm, Lot 42, Litchfield Township.

In Holmes County, Monroe Township, the Lydic Oil & Gas Co. is drilling No. 7 Charles Shank farm, Lot 10.

In Coshocton County, Newcastle Township, the Ohio Fuel Gas Co.'s No. 1-5,501 F. O. Garrison farm, in the Third quarter, is credited with 6 bbls. initial from 3,238-84 feet.

In Summitt County, Franklin Township, F. A. Brendall and others have a showing of oil and gas at 4,081-85 feet, and indicates a fairly good producer when completed.

In Muskingum County, Wehrle Gas Co. found a dry hole on the Burton Townsend farm, in the Third quarter of Washington Township, at 3,968 feet. The Atha Oil Co. is drilling No. 1 Fred Pollock farm, in Section 12, same township. Fetty & Louchery have a light gas well in a second test on the Freeman Russell farm, Section 1, Highland Township, same county, in the Berea sand at a total depth of 1,254 feet.

In Stark County, Jackson Township, Brendall and others have a fair gas producer on the John Stockert farm, Section 26, at 4,406 feet. Bettler and others are shut down at 4,110 feet on the Ruby School lot, Section 6, same township.

In Fairfield County, Pleasants Township, the City Natural Gas Works of Lancaster drilled a dry hole in the lime formation on the Sophia, Anna and Minnie Gearing farm, Section 14.

In Belmont County, Somerset Township, Gibson, Bradfield and others are drilling No. 1 on the James Butler, Jr., farm, Section 32.

In Guernsey County, Cambridge Township, W. A. Linton's test on his fee land, Lot 3, failed to produce in the Niagara limestone formation and was plugged, but is now making arrangements to clean it out to the Gordon sand, which had a showing of gas, in hopes of making it a producer.

In Meigs County, Rutland Township, Bingle and others' No. 3 on the Charles F. Jones farm, Section 6, is a fair gas well in the Macksburg sand at 609 feet. John Mayer and others failed to get a showing in their No. 2 Marion C. Hartung farm, Section 35, Salisbury Township, in the Lower Cow Run sand at 429 feet.

ELECTRIC BALANCE MEASURES OIL WELL PRESSURE AND TEMPERATURE

By John H. Payne
Research Laboratory, General Electric Co.

An electric balance, under development for some time by the General Electric Co., may prove of considerable value to the oil industry, particularly in the measurement of bottom hole pressures and temperatures. It seems particularly suited for this kind of work in many ways.

A single instrument at the surface of the ground indicates either pressure or temperature, depending upon direction of current flow through the balance as it is lowered in the hole. Pressure readings can be made as rapidly as the device can be lowered, but for temperature determinations time would have to be allowed to reach thermal equilibrium.

The device is light in weight, and can be made quite small in diameter. It does not have to be enclosed in a pressure resisting casing. It takes only a single pair of connecting leads and can be operated in the field from dry cells. It is quite independent of changes in the resistance of the connecting wires, and allowances can be made and checked as measurements proceed for any leakage between these wires. The principle involved in the balance itself is quite simple.

It can best be illustrated by referring to Figure 1. Here, the weight "W" tends first to compress the carbon pile "P." This results in the lowering of the resistance of the electric circuit and a corresponding increase in the current through the magnet "M." The resultant lift in the armature "A" tends to decrease the pressure on the carbon pile and an equilibrium is established between the downward thrust of the weight and the supporting action of the electro magnet and the carbon pile. The balance is so designed that the supporting action of the magnet may be 100 or more times greater than that of the carbon pile so that variations in the resistance pressure characteristics of the carbon pile have very little effect on the overall accuracy of the device. The current required to maintain the balance in equilibrium is a measure of the force applied.

Figure 2 shows a method by which it is proposed to apply this principle for measuring temperature and pressure conditions in an oil well. Two balances, "B¹" and "B²," are enclosed in an oil-filled metal container having a siphon at one end which equalizes the external and the internal pressures. One of the balances measures the force exerted by a bi-metallic strip and so indicates the temperature. The other balance is arranged to measure the pressure by measuring the force exerted by a Bourdon tube, which has previously been exhausted and sealed. Although this Bourdon tube is within the metal container, it is subjected to the same pressure as that existing on the outside of the case by virtue of the equalizing action of the siphon. The case also contains a small polarized relay, P, so connected that either balance may be put into the circuit, depending on the direction of the current flow through the device. This direction, of course, is controlled by the operator on the surface.

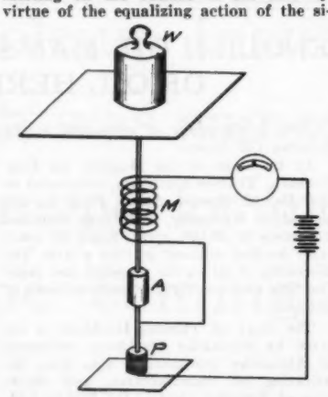


FIG. 1
Diagrammatic sketch illustrating principles of General Electric pressure and temperature instrument.

No tests with the complete device illustrated in Figure 2, have been made as yet, but the instrument can be made up as soon as a real need for such an instrument is indicated. From the results of work done with electric balances, it is believed that such an instrument would give excellent results in the field.

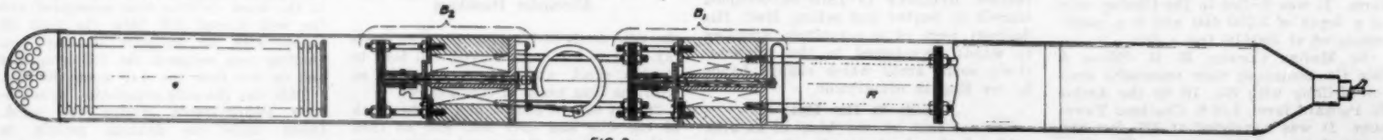


FIG. 2
Outline drawing of General Electric instrument for measuring pressures and temperatures in wells.

INDIANA

Compiled by Paul F. Simpson, state gas supervisor, Department of Conservation, Division of Geology, Indianapolis, Ind., by counties.

Daviess County—C. C. Taliaferro found a dry hole at 1,150 feet, in No. 1 S. Jones, in the NW Section 36, Veale Township. In the SE of Section 30, Harrison Township, James E. Young completed a 750,000-foot gas well at 975 feet on the Edward Robinson farm. No. 1 H. Robinson, in Section 1, Veale Township, was also completed a dry hole. Harry Hanson is starting No. 1 Oliver Smith in the SE of Section 4, Harrison Township. No. 1 William E. Wallace, drilled by James E. Young in the NW of Section 31, Veale Township, was abandoned and plugged.

Dearborn County—The Dearborn Development Syndicate has started a test on the Christ Schumaker farm in Section 27, Kelso Township.

Delaware County—Max Ziegler abandoned Nos. 2, 3, 4, 5, 6, 7 and 8 H. M. Friddle and Nos. 1, 2, 3, 4, 5, 6 and 7 Lawrence Coons, all in Section 17, Delaware Township. Harley Demoss abandoned Nos. 1 and 2 H. C. Ashcraft and No. 12 J. H. Baugh in Section 36, Liberty Township.

Dubois County—The Holland Oil & Gas Co. is drilling a test 2 miles from Holland. There are rumors of another company being formed for gas near Jasper.

Elkhart County—Plans for drilling No. 1 Richard C. Lake, in Section 10, Jefferson Township, were abandoned before the actual drilling by the Defiance Oil & Gas Co. was started.

Gibson County—The test drilled by the Indiana Southwestern Gas Corp. on the Levin Gudgel farm in Section 25, Columbia Township, was plugged at 4,009 feet. It was the deepest test yet drilled in Indiana.

Greene County—According to last reports, the test on the Mager and Fisher farm, in Section 4, Washington Township, being drilled by the Old Dominion Corp. was down 700 feet, having encountered a showing of gas at 350 feet.

Hamilton County—No. 1 Nellie Graham, started by the James McMahan Co. in Section 6, Jackson Township, has been shut down at a shallow depth.

Hancock County—A fair gas well was completed for Harvey Snider on the Frank Felt farm in Section 17, Brandywine Township.

Jay County—J. D. N. Wesner completed a gas well for W. O. Hoppes in Redkey. The first well was a dry hole.

Knox County—The Gardner Petroleum Co. has started No. 1 Blann estate in the NW of Section 15, Busseron Township. In the SE of Section 15, same township, Parker & Lloyd are drilling the Lance W. Hall.

Laporte County—H. J. Hauck and others are drilling No. 1 John Siddles in Section 4, Lincoln Township.

Martin County—The Knox Utility Corp. has been given the franchise for gas in Shoals. A pipe line will be laid from its new wells in southeastern Daviess County.

Monroe County—The test well drilled by the Saddle Creek Oil Co. on the Dur-

(Continued on Page 82)

FOR PERFECT PERFORMANCE

AMERICAN SHOT BARREL

Precision Machined

Shot Packed Pump

No plunger freezing by floating sand.
No temperature or loadstone effects.
No cups to wear out or replace.
No loss of production in re-charging.

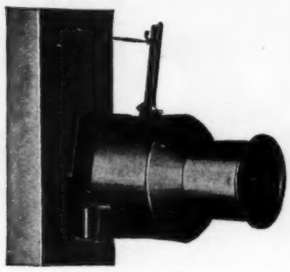
Pour the shot down the TUBING when production weakens and you have recupped the plunger. The lead will fill up any scored place in the gray iron barrel or plunger.

A trial will convince you that its operation and principle is right, and the secret of its success is the proper leading-up of the gray iron barrel and plunger, filling up with lead any inaccuracies in the barrel, making a smooth, close sliding fit for the plunger, adjusting its own tightness and insulating the loadstone away from the balls and seats. This insures pumping to maximum capacity, even under unusual circumstances.

Made for 2, 2½ and 3-inch tubing; upset or regular. The barrels are called and classified as 6, 8 and 10-foot barrels, although the barrel is considerably longer than classified. When ordering, specify the tubing as upset or regular, also the thread on same, likewise the rod on plunger, whether A.P.I. or old standard pin.

AMERICAN AUTOMATIC CATHEAD

All movable parts housed and mounted on Cathead spool which keys on the line shaft.



Automatic Cathead

Clutches have four point contact and two point disengagement, and also have twelve square inches of clutching face when engaged. Cathead has 36-inch stroke and can be engaged on quarter revolution. Thoroughly greased from one point by Alemite. Pays for itself in time saved coming out of the hole as well as a safety factor in preventing accidents.

RELEASING AND CIRCULATING SPEAR

Rugged construction, with simple release mechanism, the operation is simple which means a saving in time and expense. The picture and details give further proof of perfect performance.

Releasing and Circulating Spear

Spear Stem with key,
hollow for fluid circulation.
Shoulder on Releasing nut.
Releasing Nut.
Slides vertically on the Stem and key.
Box of slip threaded right hand
to allow release.
Spear Slip.
Solid ring at top end, lower portion slotted for expansion of the gripping section.
Mandrel.
Will rotate on the stem—minimizes friction in the releasing operation of the spear.

Furnished with or without rubber packer for circulation.

Exclusive Distributors

CACTIZONA WATER TREATMENT

Mid-Continent Area

AMERICAN IRON & MACHINE WORKS CO.

OKLAHOMA CITY, U. S. A.

MANUFACTURERS OF OIL FIELD EQUIPMENT

American Releasing and Circulating Overshots
American Rock Bit Wrenches
American Milling Shoes
American Flexible Coupling for Rock Bit Lubricators
American Steel Tool Houses
American Steel Tool Boxes
American Forged Steel Wall Hooks
American Rock Bit Breakout Blocks
American Paraffin Bits
American Forged Steel Drill Collars
American Female Die Nipples
American Releasing and Circulating Spears
American Tapered Taps
American Forged Steel Subs
American Rotary Shoes
American Cone Fishing Baskets
American Steam Lubricators
American Side Tracking Mills
American Combination Reverse and Throttle Levers
American Steel Engine Foundations
American Automatic Cat Head
American Rock Bit Vises
American Rotary Milling Tools
American Myrcle Sucker Rod Sockets
American Surface Bit Blades for Rock Bits
American Drill Pipe Float Joints
American Casing Suspender and Blowout Preventer
American Lead Plug
American Rock Bit Cone Fishing Sockets
American Steel Whipstocks
American Inside Pipe Cutter for Drill Pipe or Casing
American Adjustable Steel Rig Braces
American Fish Tail Bits
American Pipe Rackers
American Boltless Hose Clamp
American Shot Packed Barrel
American Cactizona Water Treatment

AMERICAN PRODUCTS SOLD THROUGH LEADING SUPPLY STORES

Oil Industry Equipment and Supplies

WALWORTH ANNOUNCES ADDITIONS TO ITS LINE

Lubricated plug valves for oil, gas, water and other industrial service, and lubricated service cocks for gas and air are now available from the Walworth Co., Boston, Mass., manufacturer of valves, fittings and pipe tools. The addition of lubricated plug valves to the Walworth line followed the acquisition of basic patents by the company. This type of valve gives the advantages of full, direct port opening with a quarter turn of the operating handle or wrench. The valves are smooth-turning and can be throttled or opened wide at will. Tight seating is assured by the fit between plug and body and the lubricant seal, while the lubricant also prevents wear. The valves are available in practically all types and sizes and in metals suited for the service required. They are furnished for high as well as low pressures and for vacuums, suitable for air, oil, water, gasoline, gases, chemicals, hot tar, hot oils, etc.

The successful operation of lubricated valves is dependent to a great extent upon their proper lubrication, and the Walworth Co. engineers have developed several kinds of lubricant for various service conditions, with reference to pipe line contents, temperatures and other factors. Long life and a minimum amount of maintenance labor are assured by use of the correct lubricant.

Walworth lubricated plug valves may be operated with ordinary monkey wrenches, although special operating handles are made and on larger sizes hand wheels are furnished. Planetary geared handles also can be furnished on certain sizes of valves. A 20-page catalog describes the full line of iron and steel lubricated plug valves for a wide range of pressures and uses.

TRANSIT SHOPS HELP TO REDUCE SMOKE NUISANCE

The National Transit Pump & Machine Co., Oil City, Pa., is receiving commendation for its part in reducing the smoke nuisance. The main feature of its installation for this purpose is a stack of reinforced concrete 192 feet high. The outside diameter is 12 feet at the base and 8 feet 6 inches at the top. The inside diameter is 7 feet throughout the entire height. At times a faint haze issues from the stack, while at others, even when the boilers are operating full, the air is perfectly clear about the top of the stack.

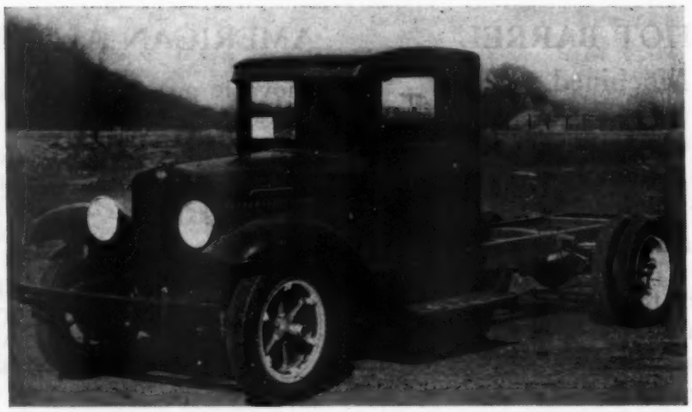
What the Transit has accomplished in abolishing the smoke evil is applicable to every other smoke problem, declares J. H. Raymaker of the Transit shops, who has offered the services of his engineers without charge in advising other Oil City plants how to overcome their smoke trouble.

The Transit boilers and stack represent the latest in equipment. Coal is unloaded, dumped, conveyed, crushed, fed to the boilers, ejected as cinders and ready to load in trucks with a minimum of hand labor. There is no need for the actual handling of the coal or cinders, only the operation of the coal handling machinery.

Recently five boilers were removed and two boilers of 506 horsepower each installed. The new boilers give four times the horsepower of the five removed and occupy much less space.

G. H. Garcelon has been made manager of the control engineering department of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. He succeeds J. H. Belknap, transferred to the engineering division of the Pittsburgh district office of the company.

INTERNATIONAL ANNOUNCES TWO NEW TRUCK MODELS



International Harvester has announced two new 1½-ton trucks, Models A-2 and B-2, which are said to have many performance features that make them superior to their predecessors. The Model A-2 is built in two wheelbases, 136 and 160 inches. Each has a body allowance of 1,200 pounds, and for commercial hauling and delivery service each has a maximum carrying capacity, including body and pay load, of 4,200 pounds. However, for dump truck service a maximum gross carrying capacity of 4,575 pounds, body and pay load, is permitted on the 136-inch wheelbase chassis. The Model B-2, called the six-speed special, is built only in 136-inch wheelbase. It has a maximum gross carrying capacity, body and pay load, of 4,200 pounds for commercial service and 4,575 pounds for dump truck service.

Both employ the same units throughout with the exception of rear axles and transmissions. In the Model A-2 the rear axle is of the single-speed, spiral-bevel drive type. In the B-2 a two-speed axle, which, coupled with the three speeds of the transmission, provides six forward and two reverse speeds, is used. In the Model A-2 a four-speed transmission with one reverse is employed, while the Model B-2 has a three-speed transmission. Each of these new Internationals is powered by a four-cylinder, L-head type engine, 3⅝-inch bore and 4½-inch stroke. Piston displacement is 185.8 cubic inches and the engine develops a maximum of 39 brake horsepower at 2,400 r.p.m. Its maximum torque is 120.5 pound-feet at 1,000 r.p.m.

"Safeguarding Your Pipe Line Investment" is the title of a 12-page illustrated booklet issued by Johns-Manville, New York, and devoted to J-M asbestos pipe line felts.

MATERIAL FOR RENEWING TANK BOTTOMS IS ANNOUNCED

The National Tank Seal Co. of Tulsa contributes to conservation by offering a material and method of renewing tank bottoms of crude oil field and storage tanks. This "Natasco" plastic tank bottom cement simplifies such operations, is said to reduce replacement costs one-half to two-thirds and conserves tank storage space.

No overlayer of water is necessary as free contact of the "Natasco" material with crude oil or other petroleum products does not affect the material.

Natasco plastic bottom cement partly covering 55,000-bbl. steel storage tank bottom. Note patches in foreground covering holes caused by corrosion.

BRIDGEPORT HANGAR HAS JUST ONE WORKING PART

Simplicity of design and operation is combined with sturdiness in the Bridgeport straight lift pumping hanger (patent pending). Made of forged steel, this hanger has only one working part, and may be assembled and disassembled without tools. The polished rod clamp is of wedge type construction and will slide up and down in the reins in case of rods sticking, preventing damage to rods or hanger. Other features are the saddle assembly, adaptable to any type of beam; easy working adjuster, natural oil bath lubrication of the working part, and a self-aligning knuckle. Hangers are furnished with or without the saddle assembly, as this is not needed with underslung beams.

The device is distributed by the Bridgeport Machine Co., with main offices in Wichita, Kans., and branches in the various oil fields throughout the Mid-Continent area.

IDECO AND STACEY FORM NEW EQUIPMENT COMPANY

The International Derrick & Equipment Co. and the Stacey Engineering Co. have been merged to form the International-Stacey Corp., with the home office in Columbus, Ohio. Col. Carmi A. Thompson, of Cleveland, Ohio, former president of the Stacey Engineering Co., is chairman of the board of directors. Harry M. Runkle, former president of the International Derrick & Equipment Co., was elected president and general manager.

The Stacey Engineering Co., a holding company, owned and operated by the Stacey Brothers Gas Construction Co. and Stacey Manufacturing Co. of Cincinnati, and since 1929, has owned and operated the Connersville Blower Co., the P. H. & F. M. Roots Co., of Connersville, Ind., and the Wilbraham-Green Co. of Pottstown, Pa. The Stacey companies in Cincinnati have been in business for over 80 years, constructing gas holders, tanks, stacks, purifiers and other gas, oil and water containing equipment. The Roots company, with 80 years behind it, manufactures blowers, exhausters, meters and similar equipment. The Connersville Blower Co. and the Wilbraham-Green Co. manufacture the same type of equipment. The Cincinnati properties will operate as the Stacey Gas Holder division of the International-Stacey Corp. The Connersville properties will be known as the Roots-Connersville-Wilbraham division.

The International Derrick & Equipment Co. will be the Ideco division. International manufactures oil well drilling and pumping equipment. It operates plants in Columbus, Delaware and Marietta, Ohio; Beaumont, Tex.; and Torrance, Calif. The Beaumont plant was formerly the Boykin Machinery & Supply Co. and is devoted to the manufacture of rotary drilling equipment and heavy oil field machinery. Ideco branches and warehouses are located in the important oil fields of the United States.

HANDY FLOODLIGHT ANNOUNCED

A 100-watt general utility floodlight projector, the Novalux Handy floodlight, has been announced by the General Electric Co. Much smaller and less expensive than the usual projectors, the unit is expected to find new uses in oil fields, in and around garages, and in other places where light requirements do not necessitate the larger, standard floodlighting units.

Fabricated piping

for all pressures and purposes, as carefully made and tested as Crane valves

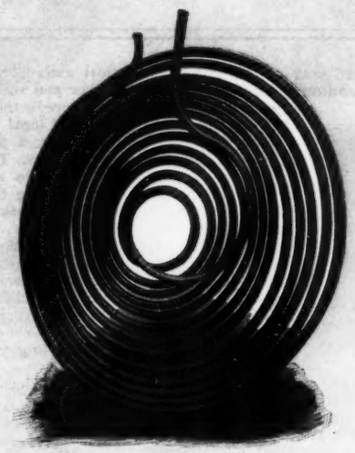
Crane facilities are complete for manufacturing fabricated piping for high pressure and temperature installations as well as for the simplest oil and gas purposes, for all special purposes as well as for every ordinary requirement.

At Crane factories at Chicago, Bridgeport, Cincinnati, Birmingham, Los Angeles, and San Francisco are turned out special materials for every possible need, as called for by oil and gas engineers in laying out and assembling the most complicated, exacting, pioneering piping installations of today.

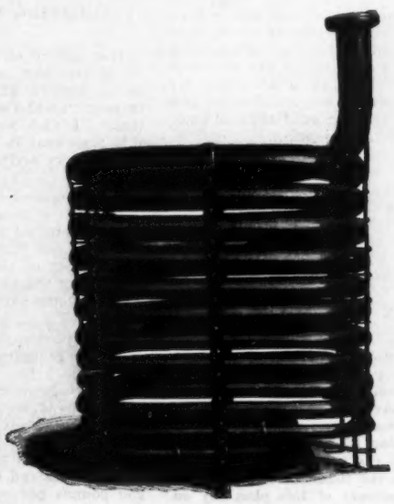
In the larger Crane branches and warehouses, located throughout the country, are pipe shops equipped and ready to fabricate bends, coils, headers, cut pipe, all ordinarily called for materials, and such special materials as your engineers may specify.

"Hit or miss" methods can no more meet modern industrial and power plant requirements in fabricating piping than in valves and fittings. Both in Crane plants and at Crane branch pipe shops, equipment is of the finest, workmen the most skilled, methods and materials the most modern. Crane fabricated piping, just as do Crane valves and fittings, profits from the 76-year Crane experience, the exhaustive Crane laboratory research and tests into capacities of metals, the thorough familiarity of Crane engineers with every service situation. Crane quality in fabricated piping assures efficiency, operating economy, and safety of equipment and lives, just as it does in Crane valves and fittings.

Let our specialists in piping, stationed at strategic points throughout the country, advise with you in selecting metals and materials, and serve you in obtaining the materials you require and the speediest possible delivery.

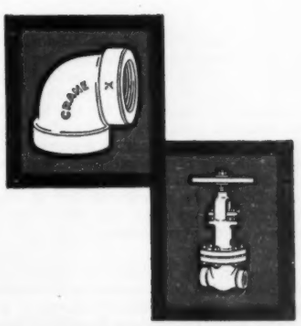


A "pancake" coil of 300 feet of 4.6 per cent chrome alloy stainless steel. One of sixteen similar coils made by Crane Co. for a large refinery.



Two pipe coils containing 57 feet of 3-inch pipe, 110 feet of 4-inch, 50 feet of 5-inch, and 30 feet of 8-inch pipe. Each coil weighs 5,700 pounds. Made by Crane Co. for a condenser installation.

NE



GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO · NEW YORK OFFICES: 23 WEST 44TH STREET

Branches and Sales Offices in Two Hundred Cities

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

SAVINGS IN GROUP OPERATIONS

I have read with interest various articles in your publication about the benefits of unitization in developing an oil field, but I have not seen anything that treated specifically the subject of whether the unit plan of operation is actually the best from the standpoint of revenue obtained from the field. Can you tell me what the exponents of this plan say on that point?—S. T. H.

Increased revenue through the unit plan of operation has been referred to directly or indirectly in much that has been written on the subject. As a matter of fact it was the possible savings in development and production costs through group operation in a given field as compared to competitive operation that provided the first incentive for adoption of the unit form of development and production.

In the discussion of the economic aspects of unitization at the meeting of the American Petroleum Institute in Chicago in November, 1930, T. E. Swigart, superintendent of production for the Shell Oil Co., touched upon this subject of reducing costs at some length. This feature of unit operation has been overlooked in a measure, Mr. Swigart said, chiefly because of the adaptability of unit plans to the control of overproduction and the vital importance of overproduction to the industry.

However, the savings in development and production costs under unit operation as compared to competitive operation will usually be of tremendous proportions and alone are ample justification for consideration of unit plans, according to Mr. Swigart.

Many opportunities exist under unit operation for increasing ultimate recovery and revenue. The unit operating company would be expected to employ technical and operating men of the highest caliber and these men would be aided in their production operations by the removal of legal boundary restrictions, excepting for a possible few tracts of outside acreage. The greatest advantage of such latitude is in controlling gas and thus insuring that it does the maximum amount of work in driving oil through the sands to wells. Also, such matters as repressuring or underground storage of surplus dry gas that has no ready market can be readily handled under unit operation, whereas they are frequently eliminated from consideration under competitive methods because of migration from one property to another.

Revenues from production should be favorably affected because of the possibility of regulating the supply of oil to meet the demands and, therefore, maintenance of a reasonable price for oil. It should be mentioned that application of the discount factor seriously affects the present worth of an oil property if the time of recovery of oil and gas is appreciably lengthened as it would be under unit operation in times of overproduction.

INCREASING THE HORSEPOWER

Horsepower of boilers is increased 10 to 16 per cent through the use of feed water heaters, according to a statement in your "Field Problems and Their Solution." I wish you would tell me what this statement is based on and how the figures were arrived at.—D. S. S.

The statement to which you refer was based on the recorded results of experiments conducted by C. E. Reistle, of the United States Bureau of Mines, with the co-operation of the Indian Territory Illuminating Oil Co. at a drilling well in the Oklahoma City Field.

No tests were actually conducted to determine the maximum horsepower that could be generated by the boilers with and without the use of the boiler feed water heater in operation. However, it was observed during the test when the heater was not in operation, with the atmospheric temperature at 42° F., that the boilers could barely supply the steam requirements and maintain a pressure of 250 pounds per square inch. After the heater was put in operation, the boilers could easily be made to "pop off," and it was necessary to reduce the fires. The theoretical increase in boiler horsepower due to heating the feed water is given in the following table:

(Boiler pressure 250 lbs. per. sq. in. gauge)

Temperature of feed water before heating °F.	Temperature of feed water after heating 210° F. per cent	200° F. per cent	190° F. per cent	180° F. per cent
40	16.62	15.49	14.38	13.30
50	15.64	14.52	13.42	12.35
60	14.66	13.55	12.48	11.40
70	13.69	12.58	11.51	10.45
80	12.71	11.62	10.55	9.50
90	11.73	10.65	9.59	8.55
100	10.75	9.68	8.63	7.60

Although this table is calculated for a steam pressure of 250 pounds per square inch, it is approximately correct for pressure as low as 150 pounds per square inch. Under the conditions prevailing during the tests, the feed water was heated from approximately 50° to 190° F., and from the table the increase in the boiler horsepower of the boilers for these conditions is 13.42 per cent.

An increase in the boiler horsepower capacity of a boiler battery is of course a decided advantage, for an ample supply of power is essential when drilling a well. This increase in boiler efficiency makes it unnecessary to fire the boilers so hard, and should tend to lengthen their life.

CARE OF LEASE TANK BATTERY

During this slack period I am anxious to study all available information about the care and operation of lease tanks. We have discussed various problems among ourselves at the lease and there seems to be a good deal of difference of opinion as to the value of pressure relief valves for small lease run tanks. Can you give me any reference to books or articles on this subject that will help in settling this question?—E. J. B.

Engineers with the United States Bureau of Mines have done much work on the problem of reducing evaporation of fresh oil in lease tanks to a minimum and if you will address the bureau at Bartlesville, Okla., you can get a list of all publications it has issued.

One of the most complete books on this subject was prepared by J. H. Wiggins in 1923 and is issued as Bulletin 200, "Evaporation Losses of Petroleum in the Mid-Continent Field." Another paper by Mr. Wiggins published in the same year and known as Technical Paper 319 deals with "Methods of Decreasing Evaporation Losses in Petroleum."

Later Ludwig Schmidt did work for the Bureau on this problem and several of his papers have been published. They deal with the problems of tankage on small leases and handling gasoline and are particularly valuable to the man on the lease. Unfortunately, most of Mr. Schmidt's papers are out of print.

The principal things to be remembered in handling oil on the lease is to examine the valves placed on the tanks for the purpose of controlling the escape of vapors from within or the entrance of air from the outside, every time the tank is emptied.

Much thought has been given and a great deal of money has been spent on the problem of designing relief valves of both pressure and vacuum type and there are good sets on the market and in fairly general use, but if the lease man does not give care to these valves frequently they will accumulate dirt, rust and stick. No designer can be responsible for his equipment after it has been sold and installed, so it is strictly up to the lease man to take care of this equipment.

It does not require much time to give each piece of equipment attention. When the tank of oil has been run the lease man should examine the valves and note the condition of the seat, clearances around pins in holes, freedom of hinges, and all other details that have to do with the operation of the valve. If this is done regularly the valves will work in the manner intended by the designer.

Pressure valves may be set at any required relief pressure for the tanks and personal experience and opinion will govern this detail largely. It can be roughly estimated that under the heat of the sun the vapor within the tank will expand sufficiently to cause an increase of 1-ounce pressure for each 5° temperature increase.

To illustrate, if a tank is provided with a pressure relief valve set to operate at 4 ounces and the temperature difference between day and night is 45° F. it can be assumed that the vapor within this tank has been subjected to sufficient heat to cause it to expand and create a pressure of about 9 ounces within the tank. (Divide 45° by 5, the rate of temperature increase to create 1 ounce pressure.)

If the tank has been subjected to a 9-ounce internal pressure during the day and the valve is set for 4 ounces there must have been an escape of heated vapor during the day. At night when the tank is cooled the heated gas will contract and create a partial vacuum within the tank.

Under this condition the vacuum relief valve would open and permit fresh air to enter the tank and this air would take up a portion of the lighter hydrocarbons of the oil and become saturated with them until the air is converted to a gaseous vapor. If the temperature is again raised, this charged air will be expelled and in this way an evaporation loss of the lighter ends of the oil is carried on.

While there are numerous points to be discussed concerning the desirability of using high or low pressure relief valves, the principal practical application of any type valve will be found in the use to which it is actually put when on a work tank in a field battery. If left entirely alone for month after month and given no attention it will function unsatisfactorily. On the other hand if the pumper is anxious to perform his duty as keeper of the oil that is produced on his lease and will give the valves proper attention the results will be observed in an increase in the gravity of the oil, assuming, of course, that the tanks upon which the valves are placed are vapor-tight in seams and elsewhere.

WHY WAS IT CALLED THAT?

HEAT EXCHANGER

Heat exchangers are so called because as a result of their design and of the high conductivity of the material used in their construction a transfer of heat actually takes place in them. The heat exchanger, made in various types, performs an important service in refineries, gasoline plants and oil-treating plants by raising the temperature of water, oil or gas through utilization of heat which otherwise would be wasted.

WHY DOESN'T EARTH CAVE IN?

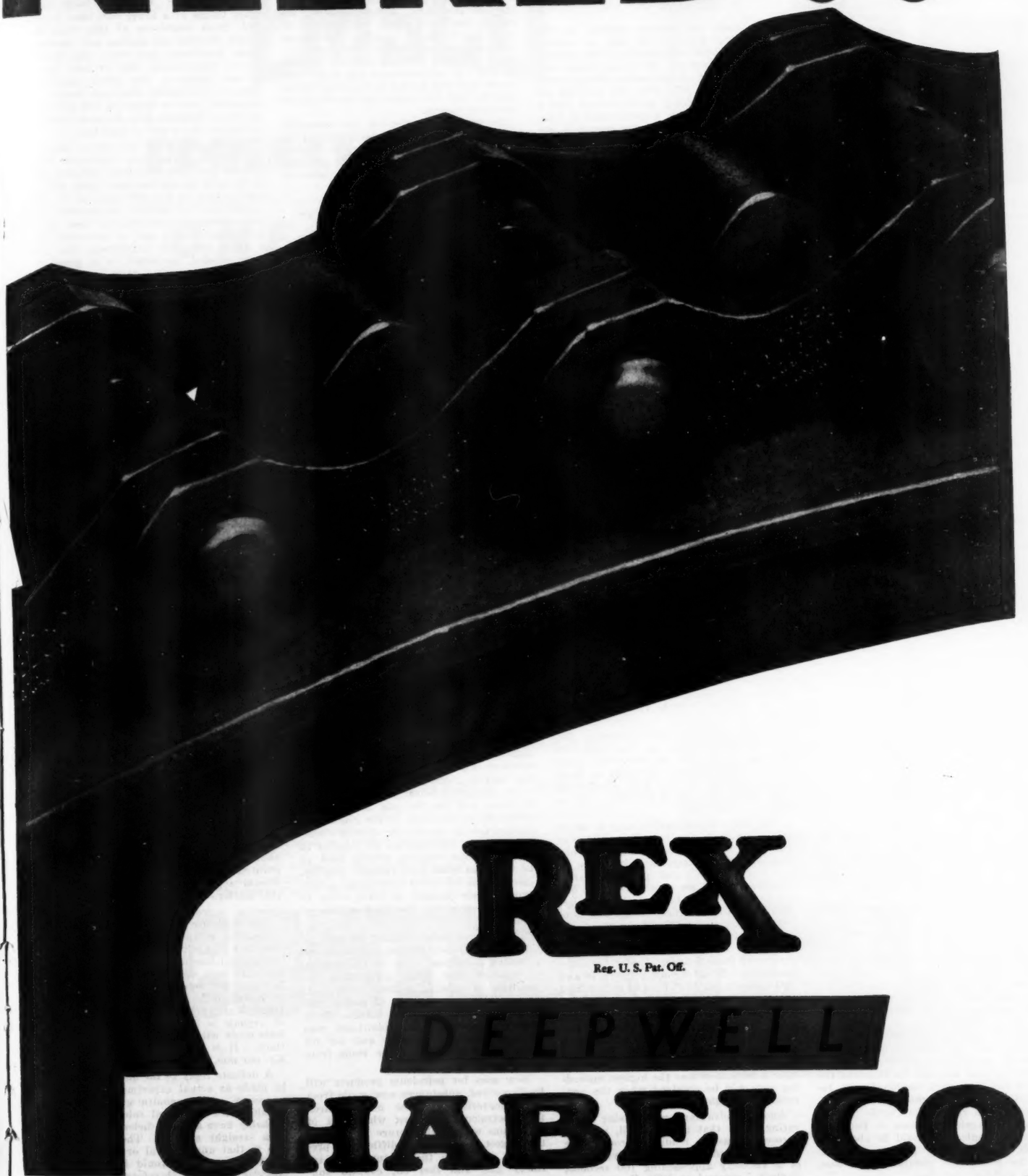
When coal is removed from the earth provision is made to prevent the surface from caving in. Why is not some similar provision necessary when oil is removed? Immense quantities of petroleum are drawn from under the ground. It is not clear why there is not much the same kind of danger of the surface sinking in that there is when coal is taken away.—E. M. D.

Dr. Charles N. Gould, director of the Oklahoma Geological Survey, gives the following answer to your question:

A barrel of crude oil contains 42 gallons, or a space of approximately 5.61 cubic feet. However, in the ground a barrel of oil will occupy a very much larger space than this for the reason that oil does not occur in a solid volume underground but only in small openings or pores (interstices) in the rocks. The volume of the pore spaces, in other words the porosity of the oil sand, will determine the amount of oil that may be contained in the rock. If a sandstone has a porosity of 10 per cent, it would require 56 cubic feet of rock to contain a barrel of oil.

As a usual thing when oil is taken from the sand it is immediately replaced by water, the water occuping the same pores or cavities formerly occupied by the oil. This will account for the fact that ordinarily the surface will not sink in when oil is taken from the ground. There are, however, a few instances, as the Sour Lake Field near Houston, Tex., where the surface of the ground has sunk several feet after large quantities of oil have been removed from wells.

NEERED . .



REX

Reg. U. S. Pat. Off.

DEEPWELL

CHABELCO

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

ETHYLENE SEPARATION FROM GAS

Could you give me references to information on the commercial separation of ethylene from the other components of refinery or natural gases?—J. L. O.

Ethylene is not present in natural gas but is found in appreciable quantities in coke oven gas and in refinery gases, especially in the gas from cracking stills. There are numerous references in the literature to the extraction of ethylene from these gases and to the preparation of ethylene derivatives. See Chemical Abstracts; Gasoline and Other Motor Fuels, by Ellis and Meigs, page 562; Alcohol, by C. Simmonds, The Macmillan Co.

The following, from the Gas Service Journal, May, 1931, page 15, illustrates one phase of the development:

The ethylene of the coke oven gas is obtained about 70 per cent pure when the hydrogen is purified by fractional liquefaction; its use should be very simple and very satisfactory from an economic standpoint.

Ethylene can be worked up to synthetic solvents such as trichlorethylene, tetrachlorethane and glycol and its derivatives. In addition there is the possibility of adding on water to form ethyl alcohol, for which W. Glund and G. Schneider have given the production costs as about 2.2 cents per pound (14.5 cents per gallon) for 90 per cent alcohol. All the gas from German coke ovens could produce 275,000 tons (83,750,000 gallons) yearly, which would supply the entire German demand. This process has not been used on a technical scale in Germany, however, though lower costs than that given above would be possible, especially in those plants fitted to utilize all parts of the coke oven gas. The monopoly particularly offers difficulties. In France and recently in Belgium the method has been used combined with refrigeration and fractionation of the liquefied coke oven gas in the Claude process of the Compagnie des Mines de Bethune. The yield of alcohol should be about 20 pounds (3.05 gallons) per ton of coal, and the production should be 4.4 tons (1,340 gallons) per day.

LUBRICATING OIL FOR KILLING INSECTS

I want to inquire relative to the spreading qualities of oils on water? What oil cuts will spread to the greatest extent on water? To what extent will kerosene spread and other oils in comparison with it? How far will an oil film spread from a given amount into a connected film over a quiet water or from air currents? In case the answer is not known, are there any available figures or estimates?—J. H. G.

The literature available here does not give direct answers to these questions except by inference. The latest developments covering the use of oils for sprays and for covering ponds, etc., prefer certain types of lubricating oil over kerosene. In 1928 Dr. J. M. Ginsberg, of the New Jersey Agricultural Experiment Station, presented a paper before the Insecticide and Disinfectant Manufacturers' Association in New York, describing experiments with various oils. Their tests applied especially to mosquito control. The most desirable property was long lasting quality, while rapidity of kill and good spreading of secondary importance. The experiments at the New Jersey station have indicated that an oil of the following specifications possesses efficient killing and spreading properties—gravity 30-34 A.P.I.; flash 130-140° F.; boiling range 350-740° F.

The highest killing fraction was that boiling between 300° and 500° F., it spreads well but does not last, soon disappearing from the surface so that breeding may occur within a few days. An oil lasting from two to three weeks appears to fall within the specifications of the following:

Gravity	30- 34 A.P.I.
Flash	130-140 °F.
Distillation per cent	Temp. °F.
10	300-400
40	400-550
50	550-750

This oil is satisfactory on both fresh and salt water, spreads well, kills within 30 minutes, and lasts 8 to 12 days. See also Theory of the Use of Oil for Destroying Mosquito Larvae, H. W. Green, Amer. J. Pub. Health, 15, 219, 1925.

E. R. deOng, of the California Experiment Station, has described tests with various mineral oils for destroying insect pests. The material following is based on his article in Ind. Eng. Chem., 22, 836, 1930; Selection of Petroleum Oil for Spraying Purposes.

The desirable properties may be determined by tests for volatility, viscosity, oxidation value, and sulphonation. Volatization has an important influence on insecticidal value and plant tolerance. Lubricating oils are considered to be better than kerosenes because they are less volatile and are viscous enough not to be readily displaced. Kerosene under experimental conditions has been found to give a low kill percentage and to rapidly disappear from foliage. Under the same conditions lubricating oils between 70 and 100 viscosity, at 100° F., and rather high volatility have given better results.

Variations in field temperatures will cause large fluctuations in viscosity and consequently have a marked influence in penetration and spreading. Such oil should not be applied when the temperature is low, of course the highest spreading rate will be obtained when the temperature is highest.

Another advantage when using lubricating oil is that the light oil, such as kerosene, passes readily through the tracheal system of an insect while oils of a viscosity approaching 100 seconds, Saybolt Universal at 100° F., penetrate very slowly and are dislodged with difficulty. A like action takes place within the leaf structure. Lubricating oils enter the leaf more slowly but portions remain for weeks or months. Functional disturbances may follow retention of a heavy oil, so a viscosity of 50-75 Saybolt at 100° is recommended for most purposes, and oils having a viscosity 95-100 may be used for sprays against the most resistant insects.

As has been suggested, the spreading quality of an insect oil is influenced by temperature and the viscosity of the oil. The New Jersey experiments against marsh larvae were made on the basis of 24 gallons to the acre surface.

NEW PETROLEUM PRODUCTS

The commercial products that are obtained from petroleum are relatively few. With the market prices for these products as they are, it seems that new uses could be developed. Is there anything to the idea that gas, especially refinery gas, and fuel oil are capable of supplying many things now obtained from other materials?—H. M. K.

The greatest progress has been made by the petroleum industry as a result of the development of the automobile and its extensive distribution. For over 20 years the petroleum refiner has been guided by the needs of the automotive industry. More and better gasoline has been made and lubricants of the highest quality have been produced to meet the exacting demands. The market has required such large volumes of these that there has really been little of the crude left. When petroleum was first refined gasoline was not wanted but every effort was made to make the then valued product, kerosene, so that yields of around 50 per cent were common. At the same time the yield of gasoline was about 10 per cent. Today the main object of the refiner is to obtain high yields of gasoline, the average yield for the country being close to 46 per cent, with many refineries obtaining 60 per cent, and it is claimed that the hydrogenation process is capable of yielding over 100 per cent.

The incentive for drilling the Drake well was to secure a material from which a good illuminating oil could be made to replace the animal, fish, and vegetable fats and oils then used as a source of illumination. The superior quality of kerosene together with lubricating oil, was largely responsible for the growth of the petroleum industry during the next 40 years, and for the past 30 years the extraordinary increase in the number of automobiles in use in the United States has caused a consumption of gasoline in such enormous volumes nobody back in the seventies could have thought possible. Gasoline has advanced from being a dangerous waste product of little value to the major product, the chief source of income.

The present daily demand for each of the 25,000,000 cars supposed to be in use is under 2 gallons, close to 1.7 gallons, of gasoline. The crude supply and the facilities of existing refineries is equal to furnishing a quantity of motor fuel far beyond this indicated volume. It is therefore important that additional uses be discovered for gasoline and for all other products that may be made from petroleum.

New uses for petroleum products will be discovered, substances now made from other materials will be manufactured from petroleum, but just what part of petroleum will in the future be used in the largest quantity it is difficult to predict. It is known that natural gas, refinery gas, and fuel oil, contain substances that can be converted to the products that are of commercial importance; however, they are made from other things at a lower cost than is possible from petroleum at this time. Research workers are making new products from petroleum materials; the results are so encouraging that we may expect to see within a few years many examples of scientific discovery similar to those that were so inspiring and stimulating when chemists first directed their attention to the study of coal tar.

Within the past few years propane and butane have been extracted from natural gas, and also from refinery gas, to be sold as concentrated fuels and to some extent as the raw material for the manufacture of related compounds. The predominating substance in these gases is methane, which may be converted into a whole series of compounds. The primary alcohol, methanol, is of great industrial importance; then there is the chlorinated compounds so useful as solvents, among these are chloroform, methylene chloride and carbon tetrachloride. From these many other substances may be prepared. The next hydrocarbon in the paraffin series is ethane, a very close relative being ethylene found in appreciable quantities in refinery gases. Like methane, it is the foundation material for the building of a large group of compounds. Ethylene glycol, a substance related to the alcohols and glycerine, is in use and recognized to be one of the best of the antifreeze liquids so necessary for automobile radiators during the cold season. It is but a short step in chemical synthesis from ethylene to ethyl alcohol and several processes have been reported for making this and a whole series of alcohols from petroleum.

The heavier fractions and fuel oil offer even more promising results. A recent paper by experts of one of the large units describes the manufacture of lubricating oils from cracked distillates and waste wax, which are of better quality than the lubricating oils now made from selected lubricating distillates by modern methods. These oils are of low pourpoint, have a high resistance to oxidation, and are not subject to a large drop in viscosity with increase in temperature.

DIELECTRIC STRENGTH OF ASPHALT

What is the relative dielectric strength of properly refined asphalt of which 99.5 per cent is soluble in cold carbon disulphide as compared with an asphaltic mastic made up of approximately 60 per cent properly refined similar asphalt and 40 per cent mineral filler; also, a coal tar mastic in which 20 to 40 per cent similar mineral filler has been incorporated with properly refined coal tar? Would appreciate references bearing on this matter.—D. C. A.

The dielectric strength of asphaltic impregnating compounds according to Machinery's Encyclopedia, shown in Kent's Mechanical Engineers Handbook, page 2,-024, has been determined to be between 300 and 400 volts per mil (0.001 inch). According to Pender's Handbook for Electrical Engineers, the dielectric strength of asphalt is 30,000 per inch based on tests made with sheets one-sixteenth inch thick. It is also given in terms of 14 Kv. per mm.

A definite reply to the question cannot be made as actual experiment would be necessary. Any asphaltic material when blended with a mineral substance would probably have a lower dielectric strength than straight asphalt. The reason for this is that any mineral or foreign particles of any kind would have a cataphoretic effect and therefore tend to lower the dielectric strength.

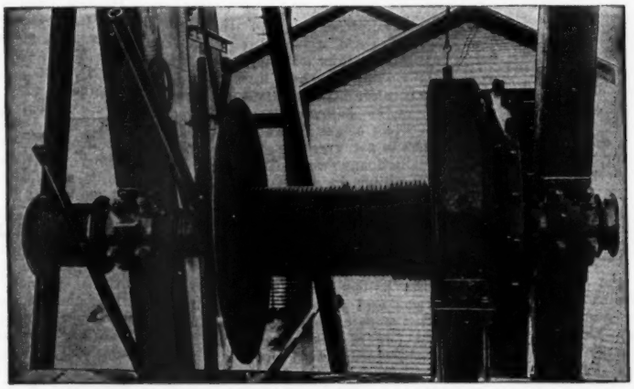
EMSCO

PRODUCTION HOISTS

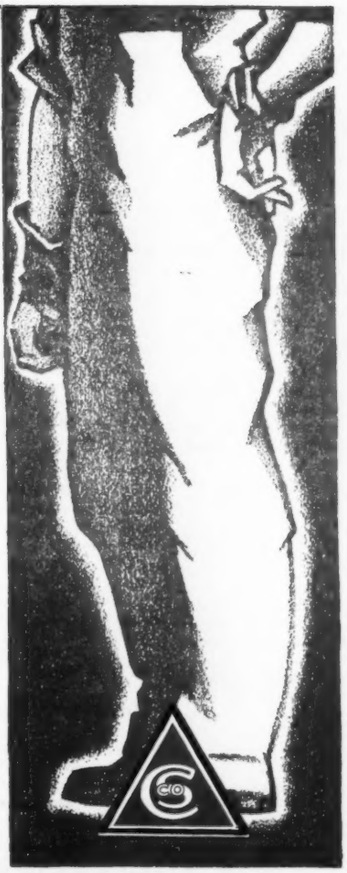
ONE MAN CONTROL

A COMPLETE LINE

FOR EVERY DEPTH WELL AND DUTY



EMSCO 46" STATIONARY TYPE PRODUCTION HOIST



Whatever your requirements, there is an Emsco Hoist especially fitted for the job. The complete line of Emsco Production Hoists includes: Cone Clutch, Disc Clutch or Jaw Clutch; single speed or two speed; cast iron single, cast iron double or forged steel double brakes.

"If Continental Sells It....There Is No Better"

THE CONTINENTAL SUPPLY COMPANY

General Offices: ST. LOUIS
THE CONTINENTAL SUPPLY CO., LTD.
224 Traders Building, Calgary, Alberta, Canada
Export Offices: CONTINENTAL EMSCO CO., INC.
74 Trinity Pl., New York
London Offices: 316-17 Dashwood House, Old Broad St., E. C. 2
CONTINENTAL EMSCO S. A. R.
7, Strada Eminescu, Ploesti, Romania

CP-3 OOJ-6-25-GRAT

CONTINENTAL

Natural Gas Industry Developments

NEW RESEARCH PROJECT ON INDUSTRIAL GAS USE

F. J. Rutledge, chairman of the committee on industrial gas research, American Gas Association, announces that the executive board has approved the undertaking of a new industrial gas research project. This research is in fundamentals of combustion space requirements in industrial gas furnaces. The project is one of a series pertaining to high temperature combustion fundamentals. The entire series is being carried on at the American Gas Association testing laboratory in Cleveland.

Mr. Rutledge pointed out that investigations by the committee, prior to beginning the project, clearly showed that there is an utter lack of uniformity in the sizes of combustion chambers of standard industrial gas furnaces designed for the same temperature and production capacity. This variation is even more noticeable in the design of special furnaces. While expediency accounts for some of this lack of uniformity, the investigations showed that the greatest differences were due to the fact that the fundamentals of combustion space requirements have never been authoritatively determined.

It is a fact well known to every industrial gas engineer that the efficiency and therefore the final cost of operating high temperature furnaces is affected by the size, shape and location of the combustion chamber. It is expected that this research will form a basis on which the engineering thought of the gas industry can agree, and with this starting point furnish to our industrial customers furnaces that the industry actually knows are burning the gas under the most efficient conditions. This problem will assume greater importance as time goes on, as furnaces are getting larger, and improperly designed combustion chambers will not be acceptable.

Before authorizing this project, the Industrial Research Committee secured the opinion of leading industrial gas engineers and leading industrial furnace manufacturers as to its desirability and its value to the industry. Industrial gas engineers were unanimous in urging that this work be undertaken for the good of the industry, and very favorable comments were received from the leading manufacturers of gas furnaces.

Active work at the Cleveland laboratory in connection with this research is now getting under way. This is the twentieth research project undertaken by the committee on industrial gas research.

CANADIAN GAS NEWS

CHATHAM, Ontario, June 20.—Following the piping of natural gas by the Canadian Western Natural Gas Co. to the town of Foremost, Alberta, a municipal gas lighting system has been installed for the streets.

A statement recently issued by P. D. Mellon, general manager, and Stanley E. Slipper, geologist, of Northwestern Utilities, Ltd., of Edmonton, states that of the 22 producing wells in the Viking Field not one has yet been exhausted. Only one well drilled in the field failed to secure natural gas production. Gas reserves in the field are estimated at 30,000,000,000 feet.

JAL GAS CHARTER

Charter has been granted the Jal Natural Gas Co., of Roswell, N. Mex. The authorized capital is 750 shares without par value, the company to begin business with only $2,100. Jal is the center of a large gas field.

COOLING AND CONDITIONING OF AIR OFFER NEW USES FOR NATURAL GAS

By Eugene D. Milener
Industrial Research Representative, American Gas Association, New York*

Research and developments during the past year have definitely put gas into the picture as a factor in house cooling and summer air conditioning. This marks a step in the utilization of gas that, it is predicted, will rank in importance with the general adoption of gas to each of the other major home uses such as cooking, water heating, house heating and finally refrigeration. Unlike the other major uses of gas, summer air conditioning, in homes especially, will not replace other fuels. Cooking, water heating, house heating and refrigeration when they are not done with gas, are done with other fuels. They are all necessities in every household.

Summer air conditioning, however, is different. It is not as yet a necessity in the generally accepted sense of the word, in fact it is a comfort entirely new to all householders. Therefore, by making it possible to sell and utilize gas for residential summer air conditioning we are for the first time, in any major application, selling gas without doing so at the expense of some other purveyor of fuel. We are opening up an entirely new outlet for gas, and fortunately one that fits in almost perfectly in helping to build up the present load factor of production and distribution facilities. That is the im-

(Continued on Page 77)

*Before convention, natural gas department, American Gas Association, Memphis, Tenn.,

OHIO TO COLLECT TAX FROM GAS COMPANIES

COLUMBUS, Ohio, June 20.— Attorney General Bettman has called upon the gas and electric utilities in the State to make payment of back taxes for the years 1927 to 1930 on revenues from business done with gas and electricity imported from outside the State.

The demand was made as a result of the recent decision of the Supreme Court of the United States in the East Ohio Gas Co. case, in which it was held that natural gas brought by pipe line from West Virginia and distributed to Ohio consumers was subject to the state tax on gross revenues.

The amounts claimed by the attorney general from nine public utilities aggregate $1,138,265, this being in addition to $1,105,476 already paid by the East Ohio company. The attorney general also is demanding compound interest at the rate of 4½ per cent on the amounts claimed to be due.

Notices to make payment have been sent to the Northwest Ohio Natural Gas Co., Ohio Fuel Gas Co., Manufacturers Light Heat Co., Natural Gas Co. of West Virginia, United Fuel Gas Co., River Gas Co., Logan Gas Co., Ohio Power Co., and Wheeling Electric Co.

DISMISSES INJUNCTION SUIT

The temporary injunction obtained in federal court by the Oklahoma Natural Gas Corp., restraining the Oklahoma State Corporation Commission from enforcing its order of last February reducing gas rates in the State 10 cents a 1,000 feet, has been dismissed on the request of both the State and the corporation.

Dismissal of the injunction order came after the gas company announced a reduction of rates to a maximum of 50 cents, at burner tips throughout the State.

The dismissal will not interfere with the rate hearing by the Corporation Commission, state officials said.

MONTANA GAS RATES

HELENA, Mont., June 20.—The Public Service Commission has issued orders for a complete investigation of the property and rates of the Billings Gas Co., Gallatin Natural Gas Co. and Consumers Gas Co. The companies are directed to submit inventories and appraisals by August 8, 1931, and to make all their records available to the commission's investigators.

TOWN GETS GAS FROM BALLOONS

Use of two 35,000-foot racing balloons as emergency illuminating gas containers took place not so long ago when the East Ohio Gas Co. replaced pipe lines near Ravenna, Ohio. While changing over from old lines to new lines, it was necessary to shut off the city's gas supply and so the balloons were inflated with 35,000 feet of gas in order that they might serve as a source of supply for the city. The balloons were filled directly from the gas lines by means of pipe laid in the form of a "Y" from the main gas lines to the balloons which were then inflated in the meadow some distance from the road along which the gas line was laid.

After the balloons had been inflated with the gas and the controlling valves on the lines were closed, it was possible to connect one of the balloons with a portable compressor which has a capacity of 220 feet per minute. Gas was then pumped from one balloon at a time and passed through the compressor into the main. In this way the consumers in Ravenna were safeguarded against any decrease in their gas supply or even in the pressure of the gas.

This is said to be the first time balloons have been used for an emergency gas supply system.

The operation was satisfactory to the East Ohio Gas Co., according to J. G. Hanks, general superintendent, Cleveland, and W. T. Hagen, also of Cleveland. R. W. Ramsdell, of the main line department of the East Ohio Gas Co., had charge. The balloons were inflated and operated by Goodyear factory personnel in charge of J. F. Cooper, general foreman of the Goodyear balloon department.

BANANA RIPENING BY GAS

Cordial relations between American Gas Association headquarters and several large shippers of bananas has led to an increased interest in the application of gas to banana ripening. It is hoped to devise a small, low-priced warm-air furnace which will specially meet the needs of banana rooms. All told, there are about 8,000 of these in various parts of the country, and many are already on gas but are using very cheap, home-made equipment without controls. A movement is under way to improve the construction of these banana rooms, equip them with fans, insulate them, and, therefore, there is an excellent opportunity to sell an improved type of gas heater and humidifier to use with them. Banana ripening is a rather critical operation, because it is easy to spoil the fruit by heating it improperly.

OKLAHOMA NATURAL PERSONNEL CHANGES

An important change in the form of organization of the offices and personnel of the Oklahoma Natural Gas Corp. was announced recently by E. A. Olsen, executive vice president. Under the new organization plan the Oklahoma Natural territory will be divided into 13 major districts with a district manager in charge of each district who will be responsible to the central management.

Ardmore (includes Healdton, Ringling, Wilson): F. W. Bortle, district manager; J. Gillis, district superintendent.

Broken Arrow: C. E. Cantrell, district manager; J. E. Mineo, district superintendent.

Chandler (includes Arcadia, Davenport, Luther, Meeker, Stroud, Wellston, Prague): W. W. Bruce, district manager; H. S. Clark, chief clerk.

Claremore (includes Inola, Ramona): J. A. Breeden, district manager; J. E. Mineo, district superintendent.

Enid (includes Deer Creek, Hunter, Nardin, Pond Creek, Peckham, Lamont): C. R. Shiers, district manager.

Haskell (includes Bixby, Coweta, Porter): R. B. Caskey, district manager; R. Eidson, district superintendent.

Muskogee: W. M. Baker, district manager; R. Eidson, district superintendent.

Oklahoma City (includes Norman with Fay Kee, local manager; Edmond with W. A. Mineo, local manager; El Reno with J. W. Lockridge, local manager; Bethany, Britton, Yukon): W. P. Canavan, vice president; M. L. Kapp, district manager; P. V. Root, assistant district manager; T. A. Wood, district superintendent; C. E. Sherburne, assistant district superintendent.

Okmulgee (includes Checotah, Eufaula, Morris, Warner, Weleetka): W. M. Maher, district manager; R. Eidson, district superintendent.

Sapulpa (includes Depew, Kellyville, Shamrock): C. C. Master, district manager; J. E. Mineo, district superintendent.

Shawnee: F. E. Padden, district manager; F. M. Crelup, district superintendent.

Tulsa (includes Dawson, Garden City, Turley): W. H. Bagley, district manager; J. A. Ray, assistant district manager; J. E. Mineo, district superintendent.

Kansas: C. M. Van Slyke, district manager; John Bass, district superintendent.

FIX GAS COMPANY VALUE

COLUMBUS, Ohio, June 20.—The state Supreme Court has sustained an order of the Public Utilities Commission fixing the value of the properties of the Logan Gas Co. at $11,688,010 as of December 31, 1929. The company had claimed a valuation of more than $22,000,000 as of 1924, when it filed an application for an increase in rates in 30 communities. The specific action of the court was to uphold the commission in fixing the value of the company's producing leaseholds at $850,000. The commission is authorized as a result of the decision to proceed to establish new rates in the various localities where they are in controversy.

GAS ENGINEERING COURSE

Through its College of Engineering, the University of Illinois, in co-operation with the Illinois Gas Association, held its sixth short course in gas engineering, June 16 to June 20, inclusive. The object of this course was to present to those attending the application of gas to domestic, commercial and industrial heating.

Personal Paragraphs About Oil Men

P. McDonald Biddison, Southern Natural Gas Corporation, Birmingham, Ala., is now located at Bastrop, La.

* * *

W. R. Brown, purchasing agent, Marathon Oil Company, Tulsa, was recently married to Faye Teeter, of Fort Worth, Tex.

* * *

Angle & Angle, operators in Southwest Texas, with an office in San Antonio, and in West Texas with office in San Angelo, have opened an office in Duncan, Okla.

* * *

Frank Coates, of Henry L. Doherty & Company, has been elected to the board of directors of the American Petroleum Institute, to succeed H. L. Doherty, resigned.

* * *

B. M. Haberer, engineer, associated with the United North & South Development Company, with residence in Luling, Tex., has taken up residence in San Antonio, Tex.

* * *

W. M. Stephenson, who discovered the Calliham Field in McMullen County, several years ago and has been residing in San Antonio, Tex., has changed his residence to Dallas, Tex.

* * *

Mr. and Mrs. Frank Smith and daughter have returned to Petrolia, Ontario, on a three months' furlough from Colombia, where Mr. Smith is on the Tropical Oil Company staff.

* * *

L. E. Copeland has been appointed receiver in equity for the Del Oro Oil Company, operating in the Playa Del Rey Field of Los Angeles, by United States District Judge Cosgrave.

* * *

William C. McDuffie, president of the Pacific Western Oil Company and receiver in equity for the Richfield Oil Company, has been in New York on a business trip in connection with the latter concern.

* * *

C. R. Weidner, Prairie Pipe Line Company, Independence, Kans., has been appointed chairman of the Committee on Corrosion of Oil Field Equipment, a unit of the American Petroleum Institute's Division of Production. He succeeds E. P. Bly, resigned.

* * *

E. V. Foran, of Wichita Falls, Tex., has been appointed technical advisor of the Central Proration Advisory Committee of Texas, and will move to the Fort Worth offices of the committee, and assume his new duties July 1. David Donoghue, who formerly held this post, recently resigned to take care of private business.

* * *

O. Q. Lomax, Humble Pipe Line Company, Houston, Tex., has been appointed member of two committees of the American Petroleum Institute's Division of Production, the Committee on Corrosion of Oil Field Equipment and the Engineering Subcommittee on Line Pipe of the Central Committee on Standardization.

* * *

Sir Francis Goodenough, C.B.E., who for 28 years has been controller of the gas sales department of the Gas Light & Coke Company of London and who has been with the company more than 43 years, has announced his early retirement. He will continue and perhaps increase his activity in the capacity of executive chairman of the British Commercial Gas Association.

* * *

Lee M. Morris will be superintendent of the new department of the Oklahoma Natural Gas Corporation which will consist of the purchasing division and the stores division. A. C. Gilbert will be purchasing agent in charge of the purchasing division and the stores division will be headed by L. A. Farmer in charge of the storerooms and general warehouses throughout the entire system of the Oklahoma Natural Gas Corporation.

H. H. James, of DuPont de Nemours & Company, Inc., has returned from Beaumont, Tex., where he spent about 10 days.

* * *

John McFadyen, vice president and general manager for the Ohio Oil Company, western division, has returned to his Casper, Wyo., headquarters after a business trip to the company's home office in Findlay, Ohio.

Men of the Industry

Sidney H. Keoughan

Sidney H. Keoughan, who in January, 1931, became president of the North European Oil Company, following the conclusion of a deal involving 1,600,000 acres of prospective oil land in Germany, was born in Clark County, Alabama, on November 10, 1880, and received his education in the Alabama public schools and the Christian Brothers College in Mobile, Ala. From 1897-1899 he was in the stevedore business with his father in Mobile and in Sabine Pass, Tex. Then he went into Mexico to get mahogany and Spanish cedar for Chicago interests.

Next Mr. Keoughan went into the oil well drilling business and in 1901 he drilled the first producing well in Louisiana. The next two years found him running a machine shop in Saratoga, Tex., and in 1904 he was in charge of the construction of a railroad and harbor at Bocas, Del Toro, Panama, for the American Banana Company. Then he drilled oil wells on contract in 1904-1906 in the Beaumont and Humble Fields in Texas and in 1906 went to Wyoming where he drilled an oil well in the Byron Field. After that he drilled wells for the Midwest Refining and Ohio Oil companies until he joined James T. Hurst in organizing the Keoughan-Hurst Drilling Company. This, through consolidation with the Elk Basin Petroleum Company, grew into the Mutual Oil Company, of which Mr. Keoughan became president.

The Mutual company then consolidated with the Continental Oil Company, of Colorado, and two years ago the Continental and Marland oil companies merged. Mr. Keoughan, who was president of the old Continental company, became chairman of the executive committee of the consolidated companies. He resigned two years ago to engage in operations on his own account. Last January a deal was concluded in which he, with the Hope Engineering Company, acquired control of the German interests and he succeeded Count Dru as president of the North European Oil Company.

Mr. and Mrs. Merle Volway and children have returned to Petrolia, Ontario, from Sumatra, where Mr. Volway has been drilling for the Royal Dutch-Shell Company.

* * *

John J. Hassler, city manager at Elk City, Okla., has been named as gas and electric engineer for the state corporation commission, succeeding R. H. Lussky, resigned.

* * *

Glen L. Shepherd, formerly with the Empire Oil & Refining Company at Tulsa, has joined the process design division of Arthur G. McKee & Company at Cleveland, Ohio.

* * *

Alice Wright has been transferred from the Wyoming state geological department in Cheyenne to the office of State Oil and Gas Inspector Frank B. Taylor, in Casper.

* * *

B. O. (Pete) Hall and family now reside in Hobbs, N. Mex., where Mr. Hall is manager of the Atlas Supply Company's store, having been transferred from Vernon, Tex.

* * *

K. R. Kingsbury, president of the Standard Oil Company of California, was in southern California recently but has returned to the company's main office in San Francisco, Calif.

* * *

John B. Barnes, counsel for the Midwest Refining Company, Denver, Colo., with Mrs. Barnes and their family are to spend the summer at their home on Casper Mountain, Wyoming.

* * *

F. P. Sterling, vice president of the Humble Oil & Refining Company, accompanied by his wife and daughter, has sailed for Europe where he will spend the summer, returning early in September.

* * *

Rex M. S. Beach, of the Okla-Tex. Oil Corporation, Houston, Tex., and Mrs. Beach, have left for New York for a summer vacation. They are making the trip by boat, sailing from Galveston, Tex.

* * *

Neil McQueen, prominent in Alberta and Montana oil operations, has become associated with Austin Taylor and W. W. Boultbee of Calgary in development of the Lorne gold mines in the Bridge River district of British Columbia.

* * *

L. L. Minor, Jr., general manager of sales, Spang, Chalfant & Company, Inc., Pittsburgh, Pa., is on an extended business trip which will include San Francisco and Los Angeles, Calif., and the principal oil field points in the Southwest.

* * *

Fred Vaile, of the West Coast Refining Company, and Rollin E. Ecke of the Wilshire Oil Company, were elected president and first vice president respectively of the California Petroleum Accountants Society at the association's last meeting in Los Angeles, Calif.

* * *

L. D. Messner, secretary and treasurer; William Whiteford, general production superintendent; and D. N. Snow, chief geologist, of the Barnsdall Oil Company, have been making a tour of inspection through the East Texas district, first visiting Corsicana where the company operates under the name of the Marnet Oil & Gas Company.

* * *

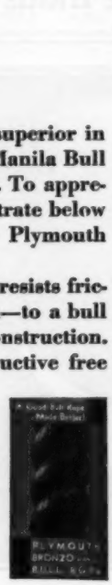
M. M. Kinley, oil well fire fighter of Tulsa, sailed on the S. S. Bremen from New York City, June 11, for Europe. His destination is Vienna, Hungary, where he will represent the Tulsa Rotary Club in the Rotary international meetings to be held June 21 to 26 inclusive. Over 60 countries are sending delegates to this meeting. Mr. Kinley is making the trip as a vacation and to recuperate from injuries sustained while fighting the fire at Sinclair Oil & Gas Company's No. 1 Cole well, near Gladewater, Tex. During his absence the business of the company will be carried on as usual by his brother, F. T. Kinley, Tulsa.

PLYMOUTH
"Bronzo" Manila Bull Rope
...means longest service

JUST as the "tucked" splice for bull rope eyes is superior in service to the "rolled" splice, so is Plymouth "Bronzo" Manila Bull Rope superior in service to any bull rope you ever used. To appreciate the difference, compare the "tucked" splice we illustrate below with the "rolled" splice you may be using. Then try Plymouth "Bronzo" Manila Bull Rope *with* the "tucked" splice!

"Bronzo" is our exclusive lubricating treatment which resists friction and abrasive wear. Added—at no extra cost to you—to a bull rope long famous for highest quality Manila fiber and construction.

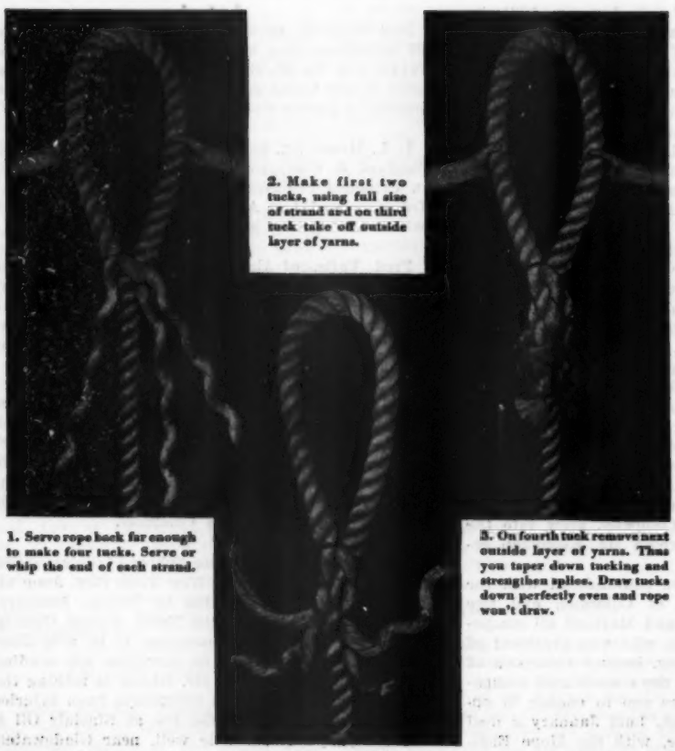
Ask the nearest Oil Well Supply Co. store for instructive free booklets on the handling of Manila drilling cables and the splicing of bull ropes.



PLYMOUTH CORDAGE COMPANY
North Plymouth, Mass.

OIL WELL SUPPLY CO. . . . . *Distributors*

STORES IN ALL OIL FIELDS


2. Make first two tucks, using full size of strand and on third tuck take off outside layer of yarns.
1. Serve rope back far enough to make four tucks. Serve or whip the end of each strand.
3. On fourth tuck remove next outside layer of yarns. Thus you taper down tucking and strengthen splice. Draw tucks down perfectly even and rope won't draw.

"THE ROPE YOU CAN TRUST"

NATIONAL BOARD OF OIL CONTROL SUGGESTED BY WARNER CLARK

By Warner Clark
Standard Oil Co. of California*

When we sum up the elements in the oil situation we find they were:

1. The oil industry dealt in a commodity which was a limited national resource, and as such was a social entity and of national concern.

2. The unfortunate condition of the industry which sought to produce this limited resource was due to the location of so much of the crude being revealed all at once, that a generous portion of the world's reserve was dumped on the market without regard to the market's consumptive capacity.

3. Consequently the problem before the industry, which was of general social concern, was to so produce and sell this resource that the sensible utilization of every fractional part of the power contained in it will be realized.

What should have been done was:

1. To recognize that despite the private rights present in the control of the petroleum, there was owing to the nation and to society, the duty of defending the oil against physical waste and wasteful misuse.

2. With this hypothesis as a basis, the oil industry and the various government agencies should have co-ordinated their efforts so as to

(A) Protect the reserves contributary to small wells from annihilation, which would likewise have defended the capital investment in these wells from confiscation.

(B) To positively protect, as far as was physically possible, oil sands from unnnecessary flooding with water; but once these sands became inescapably flooded, to have given their production right of way over all other in order that the remaining oil could have been rescued.

(C) Force flush fields and flush wells to curtail their production to normal industrial demands. Flush productions could have been controlled in a variety of ways considering the physical conditions, the legal equities, and the various ideals and prejudices involved. Once fields were discovered, state committees should have established an outlet in conformity with the principles above outlined. The outlet should have been taken as nearly ratable as could be determined. In case the outlet was diminutive, and the landowners or holders of equities desired to convert their equities into cash immediately, the pool could have been unitized or incorporated to a degree which would have admitted the issuance of negotiable certificates or shares of stock to those entitled to them.

The organization to administer production should have consisted of a national board of control, with the Secretary of the Interior as chairman, an oil man elected by the industry, and an eminent jurist chosen by the justices of the Supreme Court of the United States. Such a board should have allayed the apprehensions of both the public and the oil fraternity. The nation would have been represented by its Secretary of the Interior, and the industry by a man of its choice, while the jurist might have been expected to act without prejudice and to have advised the board on the legality of its actions, and to have given Congress confidence to waive the antitrust statutes in so far as would have been necessary to protect this national resource. The man appointed by the industry should have acted as the board's manager in carrying its decisions into effect. He should have been the chairman of a committee of oil men representing each of the four major sections of the country, which committee would have advised him regarding industrial conditions and needs. The national committee men would have headed the regional committees and each region should have extended this type of organization to the states and the fields within the states.

Problems arising in the various fields would naturally have come to the attention of the field committees. If satisfactory solution were not found there, appeal should have been made to the state committee and to the national board of control, and a dissatisfied party should have been able to appeal directly to the board of control and have demanded a decision which would have had to have the concurrence of two of the board's members. And once a decision was obtained that decision should have been final.

*Before Production Division, A.P.I., Dallas, Tex.

OIL MAN'S FAMILY HEARS OF KENTUCKY HERITAGE

(Continued from Page 53)

he at one time owned. Remembering, perhaps, his kinsfolk in the old country, he always reserved for his heirs and assigns the mineral rights of the land which he sold. . . .

"Some of the tracts which had belonged to Thomas Duckham have passed into the possession of a great American oil company, and have been found to hold some of the richest deposits of oil in the world.

"Mineral rights amounting to hundreds of pounds a day are awaiting their owners, the lawful heirs of Thomas Duckham, who died in 1852, leaving no will and no acknowledged kith and kin.

"Who are the fortunate persons entitled to this vast property and how are they to establish their claim? These are the fascinating problems which my sister, Miss Margaret Duckham, of Freshwater (Isle of Wight), set herself to solve a few years back.

Progress of Investigation

"By the most patient search into records of births, marriage, deaths, wills and title deeds up and down the country, fitting together as in a jig-saw puzzle, sorting out relationships and information so as to build up vast family trees, she has steadily erected a structure of evidence which seems likely at last to lead to the most dramatic denouement. The descendants of the strange old Englishman may quite soon find themselves possessed of wealth which is literally 'beyond the dreams of avarice.'

"It is most strange that this 'ancestor' should unwittingly have reserved oil rights and that now 'descendants' so closely interested in petroleum as Sir Arthur and I, should be beneficiaries. As the first oil well was drilled in 1859, it is probable that Thomas Duckham in reserving mineral rights had only in mind, coal, iron, etc."

An announcement was recently made to the effect that "in the Exeter Probate Registry the will has been found of Sarah Bellamy, the sister of Thomas Duckham, whose huge fortune in Kentucky awaits settlement."

DOMESTIC APPLIANCE STUDY

A course of study in domestic gas appliances was held at the American Gas Association testing laboratory, Cleveland, Ohio, during the week of June 20. This was the third year this course has been given. It is an intensive week of lectures and laboratory work on all kinds of gas appliances, instruction being given by laboratory engineers and those in the gas industry who are specialists in their lines.

SAXET COMPANY CHANGES NAME

The name of the Saxet Co. has been changed to the Republic Gas Corp. by a vote of the stockholders, the change becoming effective on June 15. The adoption of the new name was recommended by directors when control passed to the Moody-Seagraves interests and G. E. Barrett & Co. O. R. Seagraves will continue as chairman of the corporation and William F. Morgan as president.

VARIOUS CLAY RECOVERY METHODS ARE EXPLAINED

(Continued from Page 66)

der discussion if investigated at all, has never been published.

Use of Water

Water having a very high heat of wetting on clays is not a solvent, nor is it miscible with any solvent to act as carrier for tarry adsorbed matter. Dunham's process employing an optimum amount of water does not result in complete revivification. Burning or continuation of extraction, with one of the discussed solvents or mixtures of them is required as a subsequent operation. Similar in its action, though more complete than water, is a solution of sodium hydroxide at temperatures near its boiling point (H. Lowry). Its main drawback is the fact that part of the free silica is attacked by the action of the caustic which destroys part of the submicroscopic structure. Clays thus treated will not regain their full efficiency even after another acid treatment (for removing the caustic and freeing the silica) and/or burning. The view that the displacing action of the sodium hydroxide solution is partly due to a chemical reaction is strengthened by the fact that the process is most efficient at temperatures close to 212° F. If caustic solutions could be made to displace tar at lower temperatures, better efficiencies of the recovered clay should be expected.

If sodium hydroxide can be used for displacement, it appears at first sight that ammonia should serve the same purpose. This, however, is not the case probably on account of the hydrolysis of ammonium hydroxide specially at elevated temperatures and the lack of chemical reaction with the silica. If applied under pressure at temperatures around 300° F. or higher, it might have sufficient action to make its investigation worth the effort. The advantage of ammonia is that it can be completely removed by steaming, making a subsequent acid treatment unnecessary.

Hot Solvents

Gurwitsch's work on the heats of wetting was carried out at or close to room temperature and no data on heats of wetting at elevated temperatures are available. Stratford in his patent on the application of hot solvents claims to be able to fully revivify spent clays with nonpolar solvents such as kerosene if a high enough temperature is applied. The temperatures required may be in excess of 500° F. The ease of revivification naturally depends a great deal upon the type of adsorbed matter as well as the type of clay. A contact clay used in treating acid oils is undoubtedly more difficult to extract with nonpolar solvents than a percolation clay used for decolorizing nonacid oils. Of particular interest for the recovery of contact clays used on acid oils is a patent taken out by R. R. Rosenbaum (Canada 281,077 1928) according to which spent clays are flushed with liquid sulphur dioxide. While the writer has had no experience with this particular process it should have good possibilities from a theoretical point of view. Liquid sulphur dioxide ought to be an excellent displacing agent and a good solvent for acidic tarry matter, and be easily removed by blowing with air or steam.

Into the category of "attempts to displace adsorbed matter from clays" might be placed the work by Lang, Anderson and Fuchs (The Oil and Gas Journal, 27, 29, p. 114, 1928) who studied the effect of various metal oxides on the efficiency of clays upon burning at 1,000° F. Metal oxides, if mixed as an extremely fine powder, can exert a certain displacing action and further act as oxygen carriers during the burning process. But one has to expect a chemical reaction, between the metal oxides and the silica at the temperatures involved which will cause the microstructure to sinter and reduce the efficiency of the recovered clay. Results indicate this to be the case. Clays burned in the presence of metal oxides usually are of lighter color than if burned without them. This is probably due to a combination of loosening of the tarry matter and catalytic oxidation under the influence of the oxides.

In conclusion it may be stated that highly polar solvents, having low boiling points and sufficient solvent power for the tarry matters, offer the best solution for solvent extraction. Successful extraction on plant scale is a problem of complete solvent recovery.

COOLING OF AIR OFFERS USE FOR NATURAL GAS

(Continued from Page 22)

portant thing from the strictly gas utility point of view but, from the broader viewpoint, we are presenting an entirely new comfort and luxury to the home owner.

Contribution to Prosperity

Another interesting angle to the development of gas operated summer air conditioning is that, as it grows, it will be an important contribution by the gas industry to that group of entirely new articles and services upon which leading economists say a renewed and sustained prosperity in this country will have to depend.

What is house cooling and summer air conditioning? We might answer that question by comparison and say that house cooling and summer air conditioning is the opposite of house heating and winter air conditioning. The combination of the two give year-round air conditioning. In winter we produce comfort by heating the air and then humidifying, or moistening it. In summer we produce comfort by cooling the air and then dehumidifying, or drying it. Cleaning and circulating the air contribute to proper air conditioning at all seasons of the year. The above refers to air conditioning for human comfort. There are, of course, many industrial processes where conditioned air is used regardless of the season of the year.

The gas industry, especially with natural gas, has built up a tremendous winter load through house heating. This has resulted in an unbalanced load condition and a low load factor in some systems. Many attempts have been made to create uses for gas that will balance this large winter load, and thereby raise the load factor. This would result in increased revenue and profit without increasing the investment required in production, transmission or distribution equipment. But experience has proved, unfortunately, that almost all potential uses for heat that have been investigated exist only in the winter time or else are all year-round uses that tend to become greater in the winter. House cooling and summer air conditioning, on the other hand, have the characteristic of requiring energy only in the summer, the warmer the weather the greater being the demand for energy.

Summer Use for Gas

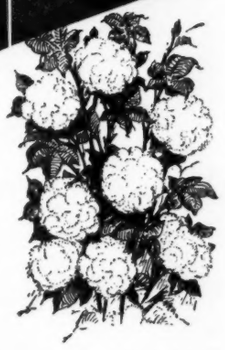
It is largely because of these facts that the committee on industrial gas research of the American Gas Association came to the conclusion that there is no more important new use for gas than that of building cooling and summer air conditioning. The work has now passed the preliminary laboratory stage, as well as the early development stage, and under the supervision of the committee on industrial gas research three typical dwellings will be air conditioned this summer with gas. These newly developed units will be operated throughout the season and should demonstrate the practicability of the process that has been developed, as well as the gas load characteristics, and give to all interested persons the opportunity to see houses actually air conditioned with gas and to study the possibilities of building up summer gas load in this manner.

It should be borne in mind that up to this time no gas has been sold in the summer time for air conditioning in buildings. Quite a number of A.G.A. approved furnaces condition the air in the winter time in a satisfactory manner. However, the load factor of these furnaces has the characteristics that result

PAGE FENCE

in 4 Metals

You can't raise cotton in MINNESOTA



Atmospheric conditions are against the raising of this splendid product so far north.

AND ATMOSPHERIC CONDITIONS PLAY JUST AS IMPORTANT A PART IN THE SELECTION OF PROPER FENCING WHEN COST PER YEAR OF SERVICE IS CONSIDERED.

The corrosive elements in the atmosphere vary in different localities. No one fence will successfully withstand all these destructive influences. That's why PAGE Fence is available in these four fine metals—so that selection can be made according to conditions under which it is to serve:

1. PAGE ALCOA ALUMINUM
2. PAGE ARMCO INGOT IRON
3. PAGE COPPER-BEARING STEEL
4. PAGE ORNAMENTAL WROUGHT IRON

Call in a PAGE Fence expert. He will tell you which PAGE Fence will give the longest service at the least upkeep in your particular locality.

76 Service Plants erect PAGE Fence everywhere. Write for name and address of plant nearest you. They will gladly consult with you and offer suggestions from plans to erection. Also, send for new illustrated booklet—Border Patrol—which contains complete information and shows various styles. No obligation. Address Page Fence Association, 520 N. Michigan Ave., Dept. E26, Chicago, Ill.

America's first wire fence since 1883

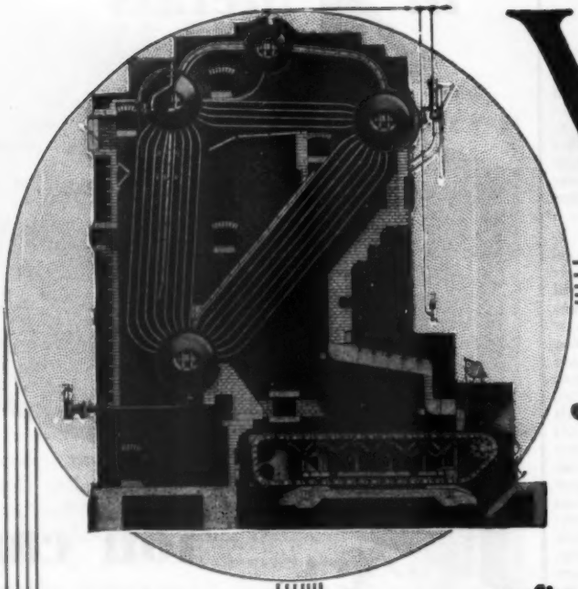
PAGE FENCE

nation-wide service through 76 service plants

Page Fence is a Product of The Page Steel & Wire Company, an Associate Company of American Chain Co., Inc.

Fence of Armco Ingot Iron fabric is exclusive with Page

CHAIN LINK OR ORNAMENTAL WROUGHT IRON

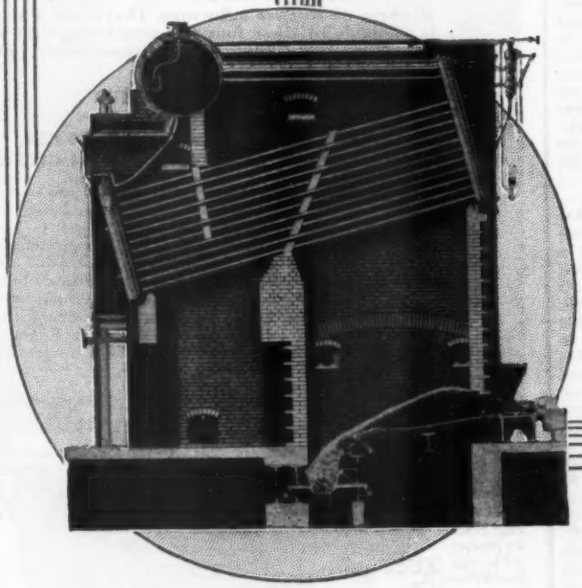


Vogt

for The Oil

Vogt Boilers are today serving practically every refinery requiring steam for power or process work. They are popular not only because there is a type and size for any condition but because they deliver uninterrupted service continually at the lowest operating cost.

The various designs here il-



HENRY VOGT
LOUISVILLE

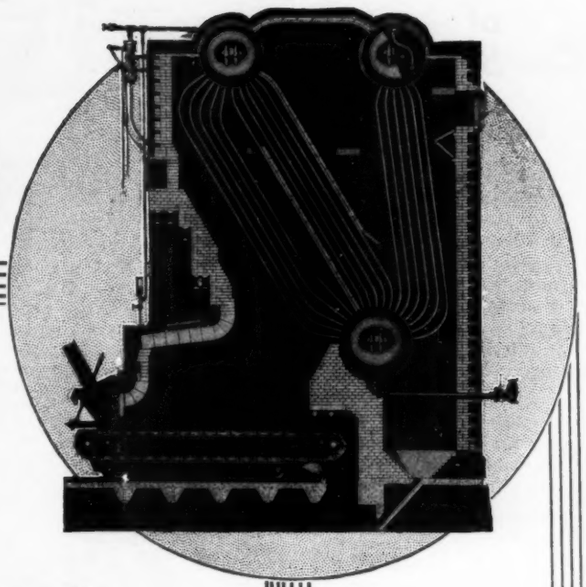
NEW YORK ... CHICAGO ... DALLAS

MANUFACTURERS OF:- WATER TUBE AND HORIZONTAL RETURN TUBULAR BOILERS ... OIL REFINERY EQUIPMENT ...

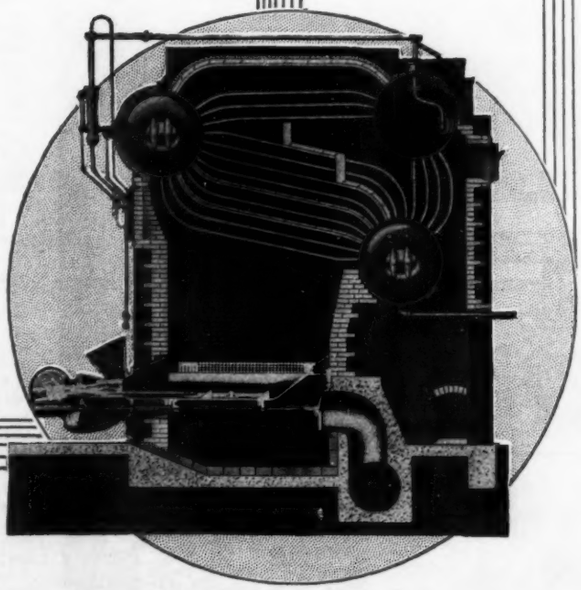
Write for the New

Water tube BOILERS

Industry



lustrated are the result of 51 years experience in boiler building. Greater economies are the net result when Vogt boilers are used for any power generating purpose whether in the 80 or the 1000 horse power class or larger. Our recommendations are available without cost or obligation for your individual power problem.



MACHINE CO.

KENTUCKY

CLEVELAND . . . PHILADELPHIA

DROP FORGED STEEL VALVES AND FITTINGS...ICE MAKING AND REFRIGERATING MACHINERY...HEAT EXCHANGERS

Boiler Catalog WT-3.

for the
Perfect Balancing
of
Gas Supply
Accuracy and safety in control of gas delivery is the especially chosen task of The Chaplin-Fulton Manufacturing Company and has been for forty-five years. There are 40 different types of Regulators, which meet a hundred times as many varying services, bearing the stamp of Chaplin-Fulton Manufacture. Each of these Chaplin-Fulton Regulators is reliable for three chief reasons:
First—Its manufacture is controlled by unvarying high standards of excellence in design and workmanship.
Second—It is efficiently and scientifically constructed to perform its service satisfactorily.
Third—It represents in superior accuracy and reliability the long accumulation of knowledge by the first firm in this country to manufacture gas regulators.
The Chaplin-Fulton Manufacturing Company
Organized 1884—oldest builders of gas regulators in America. Regulators are manufactured in all sizes from 1 inch to 24 inches; for all services; and in capacities 1 oz. up to 2,000 lbs. pressure per square inch.
28-40 Penn Ave.
PITTSBURGH, PA.
C-F

from house heating, as no gas is burned in the summer.

Research by the Gas Industry

In sponsoring research and development work in summer air conditioning the gas industry is in a peculiar situation. Almost the entire technique of summer air conditioning as far as it has gone has been built around the use of power, generated by motors or by individual steam turbines. This technique, and the equipment built for interpreting it, has nearly all been the contribution of manufacturers of air conditioning equipment. The action of the committee on industrial gas research represents, I believe, for the first time, a concerted movement on the part of an industry interested primarily in the sale of energy to analyze the entire summer air conditioning situation strictly from the viewpoint of the adaptability of that energy, and deliberately provide ways and means to begin selling its energy for that purpose.

It was found that summer air conditioning had been developed, using power, to the point where installations had been made in different sections of the country and many had been in operation through several seasons. These were practically all in commercial or public buildings, theaters, restaurants, etc., where an agreeable atmosphere attracted a sufficiently large increase in the number of customers to pay the operating and overhead costs of the systems. It was found that apparently there are limitations to the extent to which power operated air conditioning equipment can be generally applied, and that these limitations have effectively barred the introduction of summer air conditioning into residences.

Several Schools of Thought

It was also found that there were, within the heating and ventilating industry, several schools of thought regarding the best methods of cooling and dehumidifying air. One school of thought holds that both of these operations should be done only by means of refrigeration. Another school of thought holds that cooling and dehumidifying, being entirely separate operations, should be recognized as such and performed separately and distinctly either by refrigeration or by any other means that present themselves.

The almost exclusive use of refrigeration for air conditioning up to this time has been probably due to the fact that power has been the sole source of energy that has been available. While cooling can be done directly by refrigeration, dehumidifying can only be accomplished by refrigeration in an indirect and round about manner. Please bear this important fact in mind; that by far the greatest amount of energy required on an air conditioning job is that used for dehumidifying and that the energy used for the necessary cooling of the air is the smallest amount.

The gas industry through the committee on industrial gas research has been exerting every effort to encourage the development of large size gas refrigerators suitable for both regular commercial work and for air conditioning. While considerable progress has been made, no large gas refrigeration machines have yet been produced that are suitable for air conditioning by merely replacing power refrigeration machines. The research committee, deeming it to be its function on behalf of the gas industry to investigate every possible way in which gas heat energy can be utilized for summer air conditioning, found that beside being able to utilize gas refrigeration machines if, as and when they are developed, it is also possible to utilize gas to dehumidify air directly, a thing that it is impossible to do when using power. In other words, it was found that power energy is adaptable to cooling and dehumidifying buildings only by means of refrigeration but that gas heat energy not having the limitations of power energy is in addition adaptable to dehumidifying air directly and thereby utilizing an air conditioning cycle that is entirely new.

Further Differences of View

The research committee found that there are also several schools of thought in the heating and ventilating profession concerning methods of introducing conditioned air into a room. (Let me say that all authorities agree that the only practicable way to distribute conditioned air is by means of ducts and registers, with the help of fans.) One of these groups holds that air should only be introduced into a room at or near the ceiling and exhausted near the floor. Another group holds that that method, called the downward method of distribution, is not only unnecessary, from a technical standpoint but that its general adoption would forever prove a handicap to the ultimate growth of air conditioning by making it impossible to use the thousands of conventional warm air heating systems now installed. They contend that an upward system of distribution, the kind that has been used in warm air heating for years, is correct technically in that it takes advantage of the well-known fact that as air in a room becomes warmer it rises, and that from a practical standpoint, it immediately makes available for use in summer air conditioning every well laid out warm air system in the country, possibly with minor changes in the location of exhaust grilles.

There has recently, in the press, been some rather severe criticism of power operated, refrigerated buildings in which the air has been conditioned. This criticism has emanated from the public, from engineers, newspaper critics, trade paper writers and others. It has even become a standard joke on the vaudeville stage. It has been contended, that buildings have been primarily chilled instead of being conditioned and that one was literally "hit in the face" by the cold upon entering such buildings and is again "hit in the face" by a hot sultry blast upon leaving the building and going into the street.

These criticisms, have caused the research committee to go quite carefully into the subject and plan all its activities so as to avoid these pitfalls.

Conditions to Be Met

Further, it is true that the contrast between outside and inside conditions is a major factor in deciding what temperatures and humidities should be maintained. Consideration must be given to two classes of people; those who enter the conditioned area for only a short time, and those who spend the entire day in the conditioned space. If the contrast is too great the first clas is subjected to two distinct changes, the first on entering the area may not be an unpleasant one except in extreme cases, where the effect is that of walking into a refrigerator; but the second, upon leaving, is a severe on. This latter is generally the result of too great a temperature difference accompanied by a saturation of the clothing, effected by a high moisture content in the conditioned area.

This combination of moist clothing and sudden contact with high street temperature finds the body with no means of throwing off the heat load and the effect is quite noticeable. These considerations point to the desirability of an inside dry bulb temperature differing from that of the outside air in the order of about 15 degrees under maximum outside conditions and approaching more nearly to the outside temperature as the latter approaches 80° F. If, in addition to a temperature differential as indicated above, a low relative humidity is maintained, sufficient to insure rapid removal of body moisture, the conditions within the area are extremely comfortable. Not only is the comfort of the transient population of the conditioned area catered to by reducing the entrance and exit shocks but further, the resident population is cared for by providing the humidity potential necessary to keep the skin and clothing free of moisture and at a temperature insuring complete comfort.

Dryness Cannot Be Over-Emphasized

The importance of this dryness factor cannot be too greatly emphasized. Actual observations have shown that a feeling of invigoration is sometimes noticed when one passes into an area wherein the dry bulb temperature is somewhat higher but the relative humidity is considerably low-

ALLSTEEL Automatic-Release Pipe Tongs eliminate necessity of man in the ditch to release load—they open automatically when tension on lifting-line is relieved; the overall width of these tongs is no greater in open, or release, position than when in closed, or carrying, position; hence they lift freely out of the trench.

When It's TOUGH GOING

You will use Cardwell ALLSTEEL *side-winches*

Live Boom may be lowered or raised by the boom-drum alone, with or without counterweights, and under all conditions of loading given for the lifting line.

Two Drums. Lifting-drum and boom-drum are so easy to control from tractor seat that load can be watched constantly. By using these two independent lifts the load can be raised, lowered and placed either nearer or away from the machine without moving tractor.

Four Speeds on both lifting and boom-drums provide speed, power, and smoothness at all times under varying load conditions.

Power Reverse. A most important safety factor as it permits loads being lowered under power rather than relying on brakes.

Low Center of Gravity. Boom bearings placed very low. Absence of draft bar overhead overcomes danger of upset and expensive delays. Freedom from rigid projections overhead and winch mechanism installed on opposite side of tractor from boom eliminates expensive damage should upset occur.

No Stiffleg Needed. Rigid underframe construction and proper distribution of the weight in the drum-frame properly balances the boom load. This makes these machines capable of handling tremendous loads without the use of stiffleg or counterweights, though counterweights are available for excessive loads.

Rigid Underframe. Winch is combined with the tractor chassis by means of a unique rigid underframe, making a unit of boom bearings on one side of the tractor and counterweight rack and drum-frame on the other side.

Unlimited Manoeuverability. Cardwell ALLSTEEL side winch will operate at maximum efficiency wherever the "Caterpillar" Tractor will take it. Rough ground and extreme operating conditions are just opportunity to prove its usefulness.

Extreme Operating Flexibility. "A" type side-booms permit unusual lateral stability as well as unusual vertical flexibility. Load can be lowered, raised, moved away from or nearer the machine without moving tractor.

Balanced Unit. Low center of gravity plus correct distribution of weight and load result in a tractor and winch combined into one balanced unit. So true is this balance that "Caterpillar" Tractor is completely available for drawbar purposes. Cardwell ALLSTEEL Live-Boom side-winches are available in three sizes for mounting on Models Sixty, Thirty, and Twenty "Caterpillar" Tractors.

Write or wire for complete descriptive literature.

ALLSTEEL PRODUCTS MFG. CO.

Manufacturers of Pipe Line and Oil Field Equipment—Backfillers

WICHITA, KANSAS

IT HAS TO BE PLIABLE

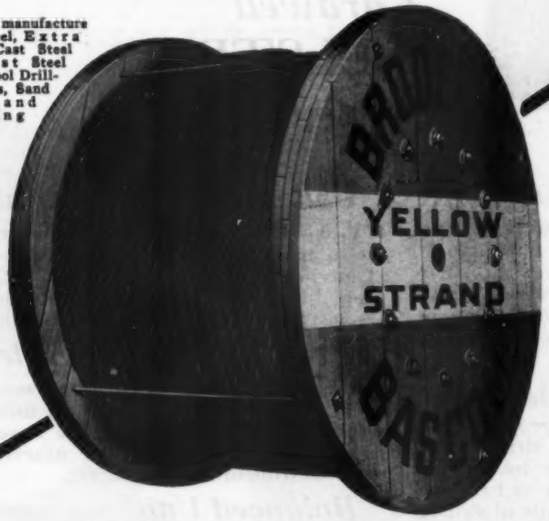
No gentle treatment here! We are testing the toughness of the steel wire used for Yellow Strand Rotary Drilling Lines. Not just *bends*—but *reverse* bends, through an arc of 180°. It must withstand a required number of bends before breaking, and a number of other severe tests, to be used at all.

You need a line of *proved* toughness and pliability for those multiple sheaves. You get these in Yellow Strand, the super line, together with resilience and strength, which spell stamina. Try it.

Get Catalog K-2

BRODERICK & BASCOM ROPE CO., ST. LOUIS
New York Houston Portland Seattle
FACTORIES: St. Louis and Seattle

We also manufacture Patentsteel, Extra Strong Cast Steel and Cast Steel Cable Tool Drilling Lines, Sand Lines and Pumping Lines.



P16R2

YELLOW STRAND
Rotary Drilling Lines

MADE OF WIRE DRAWN TO OUR SPECIFICATIONS FROM GENUINE SWEDISH STOCK

er than that just left. This is only true within certain limits of course, but it is felt that the major part of discomfort attendant to high temperature is caused by accompanying high relative humidity. A consideration of the foregoing would seem to point to an established maximum of 85° dry bulb in the populated zone where the outside temperature is in the order of 100° F. A relative humidity of 40 per cent at 85° temperature will prove comfortable under such conditions.

Whatever may be established as the maximum conditions to assure the comfort of people within the conditioned area the fact remains that there are two factors which must be positively controlled by air conditioning equipment. These are the dry bulb temperature and the moisture content. The gas air conditioning system which has been developed controls these two factors; the first by means of evaporative cooling or indirect cooling using city water, or refrigeration and the second, moisture content, by passing the correct amount of air through beds of silica gel which function as dehumidifiers by virtue of the great affinity of gel for water vapor in air.

Determined by Moisture Balance

The amount of air treated by the gel unit is determined by a moisture balance based on the moisture load within the area and upon the desired absolute humidity of the conditioned air. Outside summer conditions are such that it is essential from an economic standpoint to recirculate the air supplied to the conditioned area, adding fresh air only in sufficient quantity to supply the needs of the population within the area. The fresh air is added at the rate of from 10,000 to 30,000 cubic feet per person, depending on the requirements of the individual installation. The drying effect of the gel units may be applied to this fresh air supply or to the recirculated air stream. The moisture removal affected by the affinity of silica gel for water in air takes place at what might be considered ordinary temperatures, that is, in the neighborhood of 100° F. It follows that in this system of air conditioning the cooling effect necessary is only that required for the removal of sensible heat originating in the conditioned area.

Fundamental Difference

This gives rise to a fundamental difference between this system of dehumidification and that of the conventional compressor system which depends upon reducing the wet bulb temperature of the treated air stream to correspond to the dewpoint fixed by the desired absolute moisture content. The refrigeration systems introduce the necessity for reheat, since it is undesirable to bring air at low temperature directly in contact with the people in the conditioned area. The reheat may be supplied through the medium of tempering coils or by taking advantage of the heat load in the conditioned area. The latter method necessitates admitting the air at the top, allowing it to settle down through the upper levels of warm air before arriving at the breathing level.

The various engineering considerations that have caused some of the leaders in heating and ventilating to develop and apply different practices, all are important because they have a bearing on the speed with which gas will be sold and also the extent to which it will be possible to finally develop the business. It is our determination to use to the fullest extent the valuable points of each practice. We are projecting gas into the air conditioning field with the determination to use the versatility of this source of energy to the fullest extent.

By definitely recognizing in the very beginning that cooling and dehumidifying are two separate operations and setting out to do them separately, we believe that we are laying the foundation for an entirely new technique in the art of summer air conditioning. It is possible that this new technique will enable air conditioning to be sold to an extent that has not heretofore been dreamed of.

CENTRAL WEST FIELDS

(Continued from Page 54)

bin Hessler farm, in the SE of Section 4, Polk Township, was plugged. The Ohio Oil Co. and Petroleum Exploration Co. jointly completed one of the best wells in their Unionville Field, in No. 1 O. A. Hite, Section 17, Benton Township. Production was 1,521,000 feet with 225 pounds pressure from a total depth of 822 feet.

Perry County—Conyers & Bugg completed their third well on the Lee Aders lease in Section 19, Clark Township. Initial production was reported at 75 bbls. from below the Barlow sand at a total depth of 364 feet. They are starting the fifth well on the Frank Cassidy farm in Section 30, Clark Township.

Pike County—The Cato Gas & Oil Corp. completed No. 2 Everett Crow, in Section 25, Patoka Township, a dry hole at 1,110 feet. The third well on the same farm is drilling. Wiser Oil Co. is drilling No. 1 Charles C. Doidge, in the SW of Section 24, Washington Township, C. E. Wommer is starting No. 2 Frank Hale in the NE of Section 30, Washington Township. In Section 23, same township, James H. Young plugged No. 2 Sarah Stansell.

Randolph County—Tharp & Demoss abandoned Nos. 2 and 3 Rhoda Cockrill and No. 1 F. E. Keever in Section 4. C. F. Chapman abandoned Nos. 1 and 4 Charles Jackson in Section 9, and Charles Graf abandoned Nos. 1, 2 and 3 T. F. Adams in the same section, all being in Monroe Township.

Ripley County—One or two companies are reported taking leases south of Versailles.

Spencer County—No. 3 Marie Berg in Section 11, Huff Township, was completed at 597 feet by the Santa Fe Oil Co. The well was drilled 19 feet into the lime and showed an initial production of 50 bbls.

Sullivan County—C. W. Scott is drilling No. 3 C. L. Davis in the SE of Section 14, Turman Township. No. 1 Matilda Walters, in Section 29, Haddon Township, drilled by Wade Connelly, was reported dry at 725 feet.

Switzerland County—Leasing is active in the vicinity of Vevay since the completion of a 1,000,000-foot gas well which was reported near Ghent in Carroll County, Kentucky. The well is said to be 315 feet deep.

Vanderburg County—John Drake and others found a dry hole at 1,075 feet in Section 22, Center Township, on the William Erskine farm. No. 1 William Hitch, drilled by V. D. Smith and others in Section 3, was also dry and abandoned at 987 feet. No. 3 George Hornby, drilled by the Vanderburg Oil Corp. in Section 32, Center Township, was reported a 10-bbl. well at 1,095 feet. Peoples Petroleum Co. is drilling No. 1 William Riggs in Section 18, Scott Township. No. 1 Charles Schlag, drilled by Mack Leighty and others in Section 32, Center Township, was dry.

Warrick County—Elberfield Gas & Oil Co. is drilling No. 1 Dooney Coleman in the SE of Section 21, Greer Township.

KENTUCKY

Only four completions were reported from any part of Kentucky for the week, two being oil wells and two gas wells. The best oil producer is the Mecca Oil Co. and Clark's No. 1 on the Sam King farm in the Niagara Field of Henderson County with an initial of 15 bbls. The other is Ellis & Young's No. 1 on the Otto Rothert No. 2 farm, near Weir, in Muhlenburg County, which showed 5 bbls. initial.

In the Sebree Field of Webster County, unknown parties brought in a gas well at 685 feet on the Guy Griffith farm at Petersburg, about 2 miles from Sebree.

A gas well is reported drilled by Combs & Stevens near the old Powder Mill well in Green County.

The gas well on the Griffith farm, in the Sebree Field of Webster County, caught fire and L. I. Cook and Roy Petty, both of Sebree, were badly burned about the face and arms. The damage to the drilling outfit amounts to around $500.

FORMULAS AND CALCULATIONS FOR MAKING MUD ADMIXTURES

By T. B. Wayne
Consulting Chemical Engineer, Houston, Tex.

In the drilling of oil wells, the weight and other characteristics of rotary drilling fluids are of prime importance. The relative importance of the weight of the drilling fluid is considerably increased where gas pressures are encountered. It is, therefore, often necessary to build up its weight considerably before proceeding further with the drilling operation.

The following formulas and calculations covering a specific problem are of interest in this connection. These are, of course, rather approximate, but are of considerable service in problems of this kind.

(1) % Water by Volume in a natural mud =

$$\frac{2.65 - S_3}{2.65 - 1.00} \times 100$$

(a) The same based on gallon weights:

% Water by Volume =

$$\frac{22.0 - \text{Wgt. of 1 gal. of Mud}}{13.7} \times 100$$

(2) % Solids in Mud (By Volume) = 100 — % Water

(3) % Mud Solids by Weight =

$$\frac{S - S_2}{S_3 - S_2} \times 100$$

(4) % Mud Solids by Volume =

$$\frac{S_3 - 1.00}{S - 1.00} \times 100$$

(5) % Water in Mud (by Weight) = 100 — % Mud Solids.

The formula for adding a weighting material of known specific gravity to a mud mixture whose specific gravity is also known, to obtain a heavier mud fluid of any desired specific gravity is as follows:

(6) % Weighting Material by Weight of Specific Gravity S_1 in the weighted Mud Fluid of Specific Gravity S_3 =

$$100 \times \frac{S_3(S_2 - S_3)}{S_2(S_2 - S_1)}$$

(7) % Original Mud Fluid of Specific Gravity S_2 in the weighted Mud Fluid of Specific Gravity S_3 = 100 — % W. M.

In all of the above formulas:

S = Specific gravity of the solids in a natural mud fluid.
S_1 = Specific gravity of the weighting material (Baroid, Opalite, etc.).
S_2 = Specific gravity of the original mud fluid.
S_3 = Specific gravity of the mud fluid after adding weighting materials.
2.65 = S = Average true specific gravity of natural mud particles (clays, etc.).
1.00 = Specific gravity of water.

Specific gravities may be roughly computed in the field by dividing the weight of 1 gallon of the mud fluid by 8.3, the weight of 1 gallon of water.

Mud weights per gallon may be substituted in place of specific gravities in any of the formulas given above. For instance, W, may be used in place of S; W_3 instead of S_3, etc.

An example of the use of some of these formulas is given below:

Suppose we have 3,950 feet of 11-inch hole full of 10-pound natural mud. It is desired that the weight of this mud be increased to 14 pounds per gallon using a weighting material having a specific gravity of 4.20.

Each linear foot of 11-inch hole, assuming the sides to be straight and the hole of uniform diameter, would hold 4.9 gallons of mud, so in 3,950 feet of hole there would be 19,355 gallons of 10-pound mud weighing 193,550 pounds. Basing our calculations on these figures, they are as follows:

(A) Having 19,355 gallons of a 10-pound natural mud, specific gravity 1.205, to be weighted with a weighting material of specific gravity 4.20, to 14 pounds per gallon:

Substituting values for S and S_2 in Formula (3)

$$100 \times \frac{2.650 - (1.205 \times 2.65)}{1.205 - (1.205 \times 2.65)} = \begin{matrix} 27.5\% \text{ Solids} \\ 72.5\% \text{ Water} \end{matrix}$$

Therefore, have

54,194 lbs.	Mud Solids =	28%
139,356 lbs.	Water =	72%
Ttl. 193,550 lbs.	Mud Fluid =	100%

(B) Weight with weighting material, specific gravity 4.20, to 14 pounds per gallon:

14 pounds per gallon = Specific gravity 1.686 specific gravity of weighting material (W.M.) = 4.20.

Substituting values for S_1, S_2 and S_3 in Formula (6).

% W. M. by Weight =

$$\frac{100 \times 4.2\ (1.205 - 1.686)}{1.686\ (1.205 - 420)} = 40\%$$

Therefore, requires 40% W.M. specific gravity 4.20 by weight; 60% 10-pound mud by weight.

Check:

Material used—	W.M. sp. gr. 4.20	Mud solids sp. gr. 2.65	Water sp. gr. 1.00
40% W.M. sp. gr. 4.20	40	....	....
60% Mud sp. gr. 1.205	..	16.8	43.2
Total	40	16 8	43.2 = 100 lbs.
Equivalent vol. (gals.) 1.14		.76	5.20 = 7.1

100 ÷ 7.1 = 14, the weight of the mud in pounds per gallon.

(C) Have Given: 19,355 gallons mud specific gravity 1.205, weighing 193,550 pounds composed of:

28% Solids	=	54,194 pounds
72% Water	=	139,356 pounds
Total		193,550 pounds

The final mix requires 60% mud, and 40% W.M. specific gravity 4.20 by weight. (See previous calculation.)

$$\frac{193{,}550}{.60} = 322{,}583 \text{ lbs., total weight of mixture.}$$

322,583 — 193,550 = 129,033 W.M. sp. gr. 4.20

Resume:

Material—	W.M. sp. gr. 4.20	Mud solids sp. gr. 2.65	Water sp. gr. 1.00
W. M. sp. gr. 4.20	129,033	.....	.....
Mud sp. gr. 1.205	.....	54,194	139,356
Total	129,033	54,194	139,356
Equivalent vol. gals.	2,697.01	5,419.4	13,935.6

Total volume of 14-lb. mud = 22,052 gals.

(D) If the original mud appears too sticky or too colloidal at its original water content, a further reduction of its water content by the addition of weighting material may render it too thick to handle. However, since the hole is full of this mud, and the surplus in the slush pit over that required to maintain circulation has been pumped to a reserve pit, it is necessary to add an additional

for safety sake, use—

AMCO ALL-WEATHER ROPE

because it's the only rope made with permanent protection to every fibre. The patented treatment is unlike any other and to our knowledge it is the only one that produces a *rotproof* rope. Since it is applied to the fibre before spinning of yarns, each fibre is certain of protection against *dry-rot*—the greatest menace to Manila Cordage in the oil country.

In a recent rot test samples of 1½" diameter treated best manila, (an imitation of "AMCO") and samples of "AMCO" "ALL-WEATHER" Manila were buried for six months,—at the end of which time the "AMCO" samples tested 12,300 and 13,800 pounds while the rope offered as a substitute broke at but 350 and 500 pounds. The competitor's product lost 97% of its strength while "AMCO" lost but 20%. Is more conclusive proof required?

The next time you buy rope, whether it be bull lines, cat lines, general use rope, etc., insist on "AMCO" the original and genuine treated rope because it's guaranteed rotproof which spells *longer service*. It weighs no more than untreated rope.

The many imitations offered are an admission of the merit of "AMCO" which is setting new standards of longer service everywhere. Be sure your treated rope is "AMCO"—the dark brown rope always wrapped in green burlap; a green rope yarn marker is now being added on the outside of one strand to protect you against substitutes.

St. Louis Cordage Mills

Eleventh & Soulard Sts. St. Louis, Mo.

Branch of
AMERICAN MANUFACTURING COMPANY
Brooklyn, N. Y.

Write for list of distributors.

An Amazing Underground Recording Job—

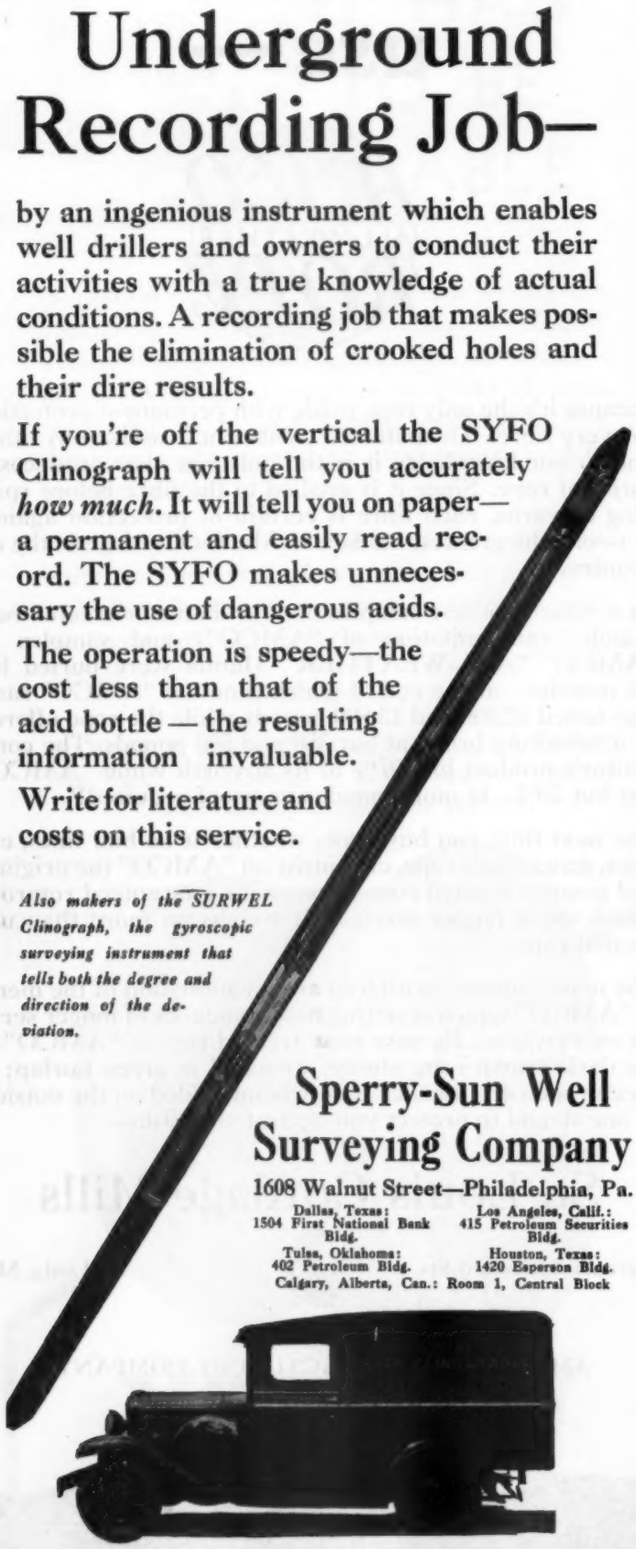
by an ingenious instrument which enables well drillers and owners to conduct their activities with a true knowledge of actual conditions. A recording job that makes possible the elimination of crooked holes and their dire results.

If you're off the vertical the SYFO Clinograph will tell you accurately *how much.* It will tell you on paper—a permanent and easily read record. The SYFO makes unnecessary the use of dangerous acids.

The operation is speedy—the cost less than that of the acid bottle — the resulting information invaluable.

Write for literature and costs on this service.

Also makers of the SURWEL Clinograph, the gyroscopic surveying instrument that tells both the degree and direction of the deviation.



Sperry-Sun Well Surveying Company

1608 Walnut Street—Philadelphia, Pa.

Dallas, Texas: 1504 First National Bank Bldg.
Los Angeles, Calif.: 415 Petroleum Securities Bldg.
Tulsa, Oklahoma: 402 Petroleum Bldg.
Houston, Texas: 1420 Esperson Bldg.
Calgary, Alberta, Can.: Room 1, Central Block

SYFO Clinograph

quantity of weighting material and water in the ratio required to maintain the desired weight of 14 pounds per gallon. This will cut down the proportion of natural mud in the mixture, and raise the water ratio to a point where the desired fluidity is reached.

Obviously, there is no definite proportion or ratio of water to solids to be maintained for mud mixtures of any weight, as this will depend on the colloidal properties of the natural mud and of the weighting material used. This is best determined by experience, or by making up experimental batches before making up the large batch, keeping record of the various proportions of natural mud, water and weighting materials used.

However, having once determined the amount of natural mud fluid on hand which must be worked up into the heavier admixture, and the amount of weighting material required to bring its weight up to the desired point, one may then use additional water and weighting material in the proportions necessary to maintain the desired weight for the final admixture. The proportions of water and weighting material used may be calculated from the formula given below, and the amounts used will be governed by the characteristics of the admixture, as explained in the preceding paragraph.

(8) % Weighting Material by Weight =

$$\frac{S_1 - S_3}{S_2 - S_3} S_2 \times 100$$

Where, S_2 = Specific gravity of the admixture desired.

S_1 = True specific gravity of the weighting material.

Then, per cent water = 100 — % solids.

Example:

In the preceding calculations, the amount of weighting material of specific gravity 4.20 required to bring up the weight of a 10-pound natural mud to 14 pounds was calculated. Suppose, however, this admixture is entirely too thick and sticky to handle satisfactorily, and it was decided to add additional water and weighting material of specific gravity 4.20 to increase the fluidity and yet maintain the desired weight per gallon for the final admixture.

Sp. gr. of 14-lb. mud = 1.686
Sp. gr. of weighting material = 4.200

Substituting values for S_1 and S_2 in Formula (8).

$$\% \text{ Weighting Material} = 100 \times \frac{4.200 - (1.686 \times 4.200)}{1.686 - (1.686 \times 4.200)} = \frac{2.881}{5.395} = 53.4\%.$$

% Water (by weight) =

100.0—53.4 = 46.6%

Thus, if to each 100 pounds of this weighting material, 10.5 gallons of water are added, the mixture will weigh approximately 14 pounds per gallon. Enough of this straight weighting material-water mixture can be incorporated in the mud mixture to maintain it in a fluid condition at the desired weight per gallon.

In actual practice, if we have a hole containing 19,355 gallons of 10-pound natural mud which is to be weighted to 14 pounds per gallon, the best procedure is to first pump out the surplus mud from the slush pit, leaving only enough to maintain circulation. The calculated amounts of weighting material and water are then introduced through the mixer at a rate which will give a mud of approximately the proper weight and fluidity at the end of the ditch. This is continued until returns of the heavier mud are obtained from the hole. The calculations indicated above should always be made in order to arrive approximately at the amounts of weighting material and water required. Weighting material slightly in excess of the indicated amount should then be brought to the mixer, and the mixture made as just described.

The final criterion, however, for judging the quality of the mix as well as the quantity of materials used, is the condition of the completed admixture as determined by its weight, fluidity and walling qualities. The mixture should be finally adjusted to have the desired characteristics after circulation has been maintained for sufficient time to allow the contents of the hole, ditches and slush pit to become fairly homogeneous. To accomplish this, somewhat different quantities of the various materials may be required from that indicated by the calculations, due largely to errors in estimating the quantity of natural mud in the hole, ditches and slush pits.

Data found in various technical handbooks and manufacturers' bulletins may be used to simplify these calculations. For instance, tables showing the capacity per linear foot of pipes of various diameters may be found in many handbooks and catalogs. Likewise, tables showing the hydrostatic pressure in wells at various depths may be found in Halliburton's Handbook of Oil Well Cementing and other publications, and are useful in calculating the weight of drilling mud necessary to hold back known gas pressures. A very useful alignment chart for computing the quantity of Baroid to be added to increase the weight of rotary drilling fluids is given in a sales booklet of the Baroid Sales Corp., of California.

The weight of the drilling mud, however, is not the only factor to be considered in the preparation of mud admixtures. While the formulas and other data given above should enable the engineer or operator to make the necessary estimates in preparing mud admixtures, the question of the viscosity of mixtures so prepared cannot be covered by any set of mathematical calculations. This must be determined and controlled only through specialized experience in this particular field. The colloidal characteristics of the natural clays, shales, etc., and also those of the weighting material used, largely determine the fluidity of the admixtures containing them. These physicochemical factors vary considerably in muds from different sources, and also in the same mud or admixture at different water contents, hence the necessity of specialized experience in this connection if full advantage of the colloidal properties of these drilling fluids is to be obtained, and the serious disadvantages of insufficient or excessive viscosity avoided.

Attempts to control viscosity in actual drilling operations have not always been as successful as might be desired owing to the complex nature of the subject, the many variables present, and the inefficieny and unreliable effect of many of the chemical agents that have been tried. During the past year, however, a series of chemical mud improvers have been placed on the market by a firm of manufacturing chemists which, when properly adapted and used in each specific problem, seem to give the desired control of fluidity, walling properties, and stability in the drilling fluid. The action of these compounds is unique in that drilling fluids may be thinned or thickened at will, and yet not cause settling out or difficult pumping. Their action is based on the modification of the colloidal properties of the fluid without any change in the solids or water content of the admixture.

That a general realization of the importance of physical and chemical control of the properties of drilling fluids is now present among petroleum producers is evidenced by the number of highly informative articles which have recently appeared in trade journals, and in the technical publications of manufacturers interested in the sale of materials and equipment used in petroleum production. Further investigations along these lines are now in progress in the technical departments of some of the larger oil companies, and in the laboratories of manufacturers and consultants interested in this subject. When their findings are worked into shape for practical field operations, aided, of course, by the help of practical field men, many of the difficulties and misunderstandings now so prevalent will have been eliminated.

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 40)

Houston Oil Co.'s (Andy Bowen) No. 1 Prieur, H. B. Sheppard Sur. ..... T. D. 1,465 ft.; waiting for cement.
Houston Oil Co.'s No. 1 Lawrence ..... T. D. 2,740 ft.; rebuilt derrick.
Houston Oil Co.'s No. 2 Rand Morgan ..... T. D. 5,432 ft.; drlg.
L. L. Smith's No. 1 Hunter, 150 ft. from S and W lines of N half of Hunter tract ..... T. D. 5,388 ft.; plugged back to 3,320 ft. to test.
Saxet Oil Co.'s No. 3 Dunn, 1,000 ft. N, 500 ft. W of No. 7 Dunn ..... T. D. 4,277 ft.; comp. 200 bbls. oil and lots of water.

WHITE POINT FIELD—SAN PATRICIO COUNTY

Saxet Oil Co.'s No. 4 White Point ..... T. D. 5,750 ft.; perforating csg. at 3,189 to 3,209 ft.; testing.

LAREDO DISTRICT
KOHLER POOL—DUVAL COUNTY

Humble Oil & Refining Co.'s No. 50 Kohler, 2,805 ft. from S line, 165 ft. from W line of Sur. 164 ..... T. D. 6,473 ft.; drlg.

COLE POOL—DUVAL COUNTY

Magnolia Pet. Co.'s No. 1 W. Benavides, 330 ft. from N and W lines, Sur. 172 ..... Drlg. 2,270 ft.

COLE POOL—WEBB COUNTY

F. P. Zoch and Trinity Drillers' No. 1 Cuellar, 1,500 ft. from NW and SW lines of Share No. 2, W of Bruni.. Set surface casing.

JENNINGS-MUCKELOY POOL—ZAPATA COUNTY

Allied Gas Co.'s No. 16 Gutierrez ..... T. D. 1,253 ft.; comp. 50 bbls.
E. C. Brogan's No. 2 Montemayor, 450 ft. from N line, 150 ft. from W line of Blk. 11, Sur. 64 ..... T. D. 1,505 ft.; testing.
O. W. Killam's No. 9 Bustamente, Blk. 7, Share 5, Comitas grant ..... T. D. 1,245 ft.; comp. 25 bbls.
Pal-Mar Oil Co.'s No. 1 Bustamente, 150 ft. from NE and SE lines, Blk. 11, Share 5, Comitas grant..... Location abnd.
Pray & Chamberlain's No. 5 Garza, 750 ft. to NW line, 450 ft. to NE line, Blk. 1, Zorro Subd. of Comitas grant ..... Spudded in.

RANDADO POOL—JIM HOGG COUNTY

Randado Oil Corp.'s No. 35 Palacios, 150 ft. to S line, 450 ft. to E line, Blk. 2, Sur. 291 ..... T. D. 1,301 ft.; comp. 16 bbls.

CAROLINA-TEXAS POOL—WEBB COUNTY

George S. Marshall's No. 1 Benavides, 660 ft. from S line, 150 ft. from E line of Sur. 683 ..... Location.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 40)

CALDWELL COUNTY

Mills et al's No. 1 McMahon, 275 ft. SW line, 75 ft. SE line of tract, J. Pinchback Sur. ..... T. D. 2,490 ft.; drlg.
M. O. Rayor's No. 1 Dunlap, 150 ft. NW and NE lines of farm, Solomon Seal Sur. ..... T. D. 2,525 ft.; plugging back.
R. R. Ogden's No. 1 O. S. Alexander, 1,300 ft. from N line, 150 ft. from E line of S. Spiller Sur. ..... T. D. 2,353 ft.; plugging back to top of chalk.

COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur. ..... T. D. 698 ft.; drlg.
Gibson & Sturm's No. 1 Clark, Dolores Alderete Sur. ... Rigging up.

DEWITT COUNTY

Coffee et al's No. 1 Jose Garza, center Sur. 49 ..... T. D. 900 ft.; changing rig.
O'Byrne et al's No. 1 Well, B.S.&F. Sur. No. 568 ..... T. D. 2,400 ft.; drlg.
S. J. Carpenter et al's No. 1 Juan Benavides, Blk. 33, Mesquite grant ..... T. D. 1,712 ft.; drlg.

FAYETTE COUNTY

Elam & Reynolds' No. 1 Florence, M. Muldoon Sur. No. 13 ..... T. D. 2,542 ft.; showing gas.

GOLIAD COUNTY

V. F. Neuhaus' No. 1 J. E. Pettus, 4,750 ft. N, 28 degrees 20 minutes W of extreme SE cor. of 3,418-ac. tract in Maria de Jesus Ybarbo Sur. ..... T. D. 3,853 ft.; rigging up to deepen.

GUADALUPE COUNTY

Harry J. Bruner's No. 1 Jim Sherrill, 150 ft. N line, 1,350 ft. W line of tract, George Allen League ..... T. D. 770 ft.; abnd. dry.
Harry Bruner's No. 2 Jim Sherrill, 330 ft. from NW and SW lines of tract in George Allen League ..... T. D. 120 ft.; drlg.
McGarrity et al's No. 1 A. Wesch, Jr., 150 ft. to N and E lines of farm, H. M. Thompson Sur. ..... T. D. 897 ft.; drlg.
Schleyer, Atherton and Armstrong's No. 1 Ogletree, Robert Smith Sur. ..... T. D. 1,745 ft.; drlg.
Linne et al's No. 1 J. E. Linne, center 353-ac. tract in V. Cortario Sur. ..... Moving in rig.
San Antonio Oil & Royalty Co.'s No. 1 Dibrell, 150 ft. from N and W lines of Sec. 6, H.&T.C.R.R. Sur. .... Location.
W. J. Walton's No. 1 Zoboroski, 700 ft. W line of tract, 500 ft. S of Guadalupe River, in Joseph D. Clements Sur. ..... T. D. 2,125 ft.; set csg.; will deepen.

HAYS COUNTY

J. C. Jones et al's No. 1 Byder, John Ingram Sur. ..... T. D. 900 ft.; drlg.

JIM HOGG COUNTY

Peterman & Minahan's No. 1 Palacios, Sur. No. 231 ... T. D. 1,360 ft.; shut down.
D. C. DeWitt's No. 1 Teofilo Gomez, 1,170 ft. from N line, 150 ft. from W line of Sur. 12 ..... T. D. 200 ft.; shut down.

JIM WELLS COUNTY

Gulf Production Co.'s No. 4 Schaeffer ..... T. D. 2,366 ft.; abnd. dry.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. ..... T. D. 1,165 ft.; shut down.
Dixon Oil Co.'s No. 1 Ottmar Behr, 823 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale ..... T. D. 2,630 ft.; reaming.
Sitton et al's No. 1 Garvin, C of NE of D. L. Richardson Sur., in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 1,482 ft.; shut down.
Fred S. Dibble's No. 1 Ellebrach, Sur. 77, N part of county ..... Spudded in and shut down.
Hicks et al's No. 1 Speck & Wiedner, Thomas Sur. No. 27, 2 miles S of Twin Sisters ..... Location.

KERR COUNTY

Herbert Oil Co.'s No. 1 J. D. Witt, 1,320 ft. N line, 1,320 ft. W line of Sec. 1,923, W. H. Hamilton Sur. .. T. D. 200 ft.; drlg.
Evans & Gant's No. 1 Selker-Mears, C.C.S.D.&N.G.R.G. Sur. No. 1,605 ..... T. D. 3,240 ft.; set 6⅝-in. csg.
Evans & Gant's No. 1 E. Young, A. E. Burge Sur. No. 28 ..... T. D. 650 ft.; drlg.
Evans & Gant's No. 1 Love in J. Martinez Sur. No. 1,594 1,320 ft. from W line of survey and 660 ft. S of S line of Sur. No. 1,597 ..... T. D. 3,391 ft.; pulling rods to deepen.
Evans & Gant's No. 2 Love, 150 ft. to S and W lines of Sur. 1,593 ..... Spudded in; shut down to drill water well.
B. M. Hatfield's No. 1 Westland, Blk. 23, Westland Subd. to Kerrville ..... T. D. 460 ft.; standing.

KIMBLE COUNTY

C. L. Bryant et al's No. 1 Lambert, 7,700 ft. N and W lines of F. Lotta Sur. ..... T. D. 850 ft.; standing.
Kamon et al's No. 1 Hodges ..... T. D. 2,910 ft.; shut down.

KINNEY COUNTY

C. R. Cox et al's No. 1 Rose, 1,344 varas from NW line, 109 varas from SW line of A. B. Harper Sur. ..... Location.

KLEBERG COUNTY

Barbee & Hunter's No. 1 Finnegan, 150 ft. from N and W lines of El Pasodeso Sur., 2 miles S of Ricardo... T. D. 2,260 ft.; took saturated oil core; preparing to test.

LAVACA COUNTY

F. P. Zoch's No. 1 Dobard, 950 ft. from N line, 150 ft. from W line of T. G. Western Sur. ..... T. D. 1,300 ft.; drlg.

LIVE OAK COUNTY

Burke-Greis Oil Co.'s No. 1 West Ranch, James Vaughan Sur. ..... T. D. 4,008 ft.; abnd. dry.
Henderson Coquat's No. 1 Hewitt ..... T. D. 54 ft.; set surface csg.

LEE COUNTY

Burt et al's No. 1 R. C. Saunders, J. Maxmillan Sur. .... T. D. 3,975 ft.; fishing.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. ..... T. D. 3,315 ft.; bailing.
C. B. Polk et al's No. 1 Stoltz, Hiram Donohue Sur. .... T. D. 2,300 ft.; shut down.

McLENNAN COUNTY

C. E. Groone et al's No. 1 League ..... T. D. 1,230 ft.; shut down.

McMULLEN COUNTY

Belt Pet., Inc.'s No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 212 Sur. ..... T. D. 28 ft.; standing.
Camp and Stanolind's No. 1 Murphy, 1,845 ft. from W line, 165 ft. from N line, Sur. 123 ..... T. D. 2,211 ft.; abnd. dry.
Whall, Scherer et al's No. 1 Shiner, Henry Brewer Sur... T. D. 1,850 ft.; drlg.

MEDINA COUNTY

J. H. Hickey's No. 1 Jungman, at N end Chicon Lake .... T. D. 565 ft.; shut down.
Sunflower Oil Co.'s No. 1 Mofield, J. Brothag Sur. No. 532 ..... T. D. 1,970 ft.; drlg.
F. E. Tegler's No. 1 J. P. Nixon, 600 ft. from W line, 584 ft. from N line of tract, near Ina Field ..... T. D. 883 ft.; set csg.
Yancey Development Co.'s No. 1 Fassler, Sur. No. 801 .... T. D. 1,680 ft.; drlg.

MILAM COUNTY

Dil-Tex Oil Corp.'s No. 1 Dilbeck, 450 ft. N and E lines of farm, Fernando Rodrigues Sur. ..... T. D. 2,425 ft.; shut down.
H. Elliott's No. 1 Kirkman, 150 ft. from NE lines of farm in M. Park Sur., NW from Gabriel ..... T. D. 1,650 ft.; in Edwards with sulphur water.
Red Bank Oil Co.'s No. 1 Foster, A. G. Berry Sur. ..... T. D. 920 ft.; drlg.

NUECES COUNTY

Southern Crude Oil Pur. Co.'s No. 1 Charles E. Stratton, 1,550 ft. E line, 330 ft. S line of P. Sancho Sur. .... Rigging up.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW Sec. 175 ..... T. D. 2,100 ft.; drlg.; showed gas at 1,980 ft.
Gant-Kilgore and Evans' No. 1 A. D. Auld, C.C.S.D.& R.G.N.G. Sur. No. 23 ..... T. D. 4,007 ft.; fishing for bailer; will deepen.

SAN PATRICIO COUNTY

United Production Co.'s No. 1 Mayfield ..... T. D. 492 ft.; set surface csg.

STARR COUNTY

B. B. Tips' No. 1 F. Dayno, Lot 1, Porcion No. 81 ..... T. D. 332 ft.; standing.
Menyard et al's No. 1 Sealbury, 150 ft. from E line, 6,550 ft. from N line, Share 5, Porcion 75, Jurisdiction of Carmargo ..... T. D. 3,000 ft.; drlg.
Los Olmos Oil Co.'s No. 4 Kelsey-Bass, 2,208 ft. from W line, 60 ft. from N line, Blk. 7, Subd. Porcions 75, 76 and 77, Jurisdiction of Carnargo ..... T. D. 500 ft.; comp. 10 bbls. oil.
Los Olmos Oil Co.'s No. 5 Kelsey-Bass, 300 ft. N of No. 4 ..... Rigging up.

TRAVIS COUNTY

Ratcliffe et al's No. 1 Jim Jones, 1,000 ft. S line, 750 ft. E line of farm in Amos Alexander Sur. ..... T. D. 305 ft.; drlg.
Waldron et al's No. 1 Cook, D. H. Minor Sur., 8 miles SW of Austin ..... T. D. 645 ft.; drlg. shale.

WEBB COUNTY

Cole Pet. Co.'s No. 4 Benavides, Sur. No. 1,601 ..... T. D. 2,324 ft.; drlg.
Eugene Garner, Jr.'s No. 1 Billings, 411 ft. E line, 956 ft. N line of NW NE, Sur. 71 ..... Location.

WILLIAMSON COUNTY

Hays & Gee's No. 1 E. G. Johnson, 1,800 ft. from N line, 170 ft. from E line of tract in B. C. Low Sur., S of Georgetown ..... T. D. 440 ft.; shut down.
Wilburn et al's No. 1 Caroline Hurts, P. Coursey Sur. .... T. D. 1,327 ft.; shut down.
Wilson et al's No. 1 Walker ..... T. D. 2,260 ft.; shut down.

WILSON COUNTY

A. M. Blume's No. 1 Nickolson, C. Diaz Sur. ..... T. D. 900 ft.; drlg.

ZAPATA COUNTY

T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur. ..... Rigged up and standing.
Bill Henry et al's No. 1 Gopher Trust estate, Borrego grant ..... T. D. 1,365 ft.; standing.
Penny Prod. Co.'s No. 1 Juan V. Cuellar, Jr., et al, 175 ft. NE line, 175 ft. SE line Poppas Subd., Porcion 33 and 34, Blk. 1, Sur. 2 ..... T. D. 2,035 ft.; drlg.
National Oil Co.'s No. 1 Zapata Trust Estate, 617 ft. NW line, 96 ft. NE line, Blk. 97, De Prom Subd., Porcion 6 ..... T. D. 690 ft.; drlg.
National Oil Co.'s No. 2 Adams, 150 ft. from NW line and SW line, Blk. 11, Borrego grant ..... T. D. 1,320 ft.; drlg.
Mackenzie & Talmadge's No. 1 Trevino, 400 ft. SE line, 200 ft. NE line, Blk. 6, Sur. No. 4, Porcion 2 and 3 ..... T. D. 709 ft.; abnd. dry.

ZAVALA COUNTY

Lloyd North's No. 1 Mrs. Clay West Burns, 1,750 ft. N line, 3,100 ft. W line of 500-ac. tract in Sur. No. 200.. T. D. 410 ft.; drlg.

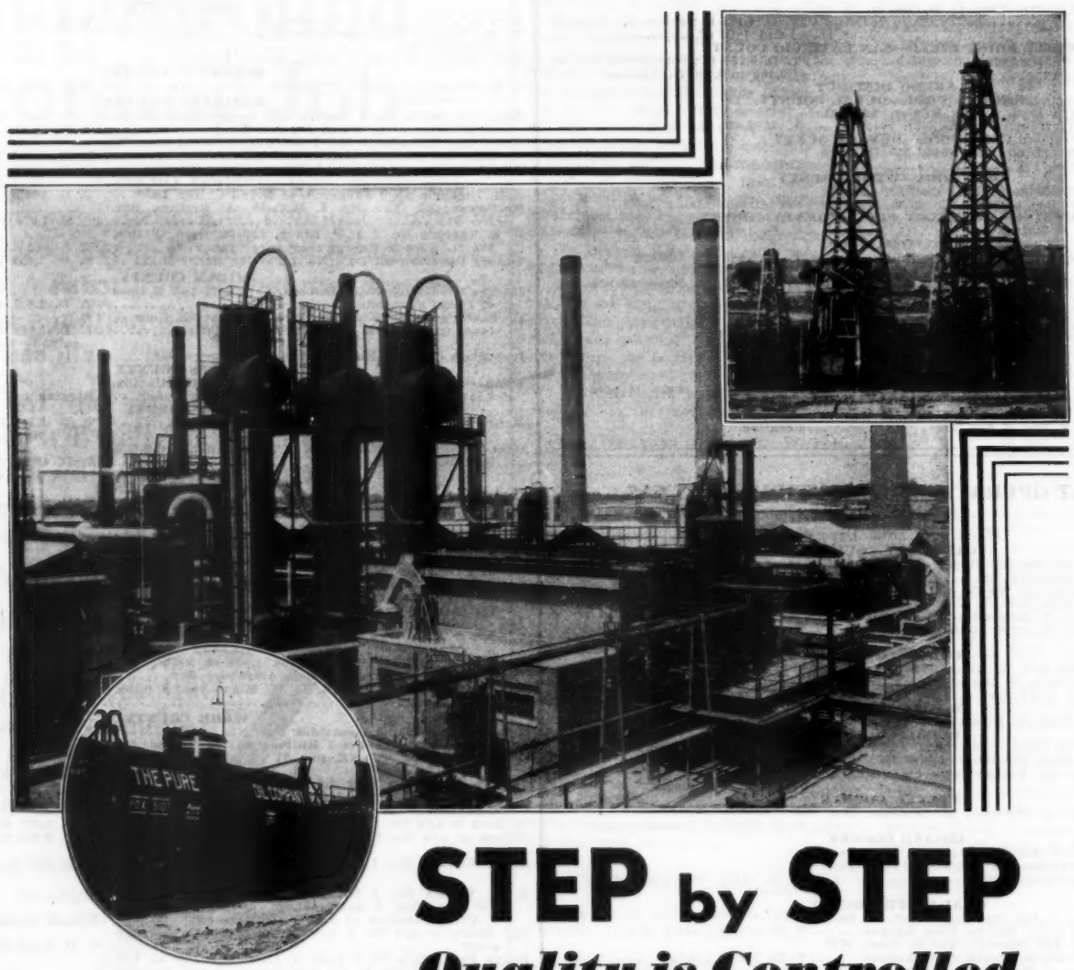
LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 38)

Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-11 ..... Began June 6; set 10-in. 95 ft.
Loring Oil Co.'s No. 16 Bowman-Hicks, 640 ft. W, 200 ft. S, C, Sec. 3-7-12 ..... Derrick pattern.
Loring Oil Co.'s No. 17 Bowman-Hicks, 1,600 ft. S, 275 ft. W, NE cor., Sec. 16-7-12 ..... Derrick.
Lyons & Neely's No. 1 Duggan, NW SE, Sec. 14-7-11 ... Location.
Lyons & Neely's No. 2 Byrd, Sec. 1-7-11 ..... Flowing 70 bbls. 2,480 ft.
Magnolia Pet. Co.'s No. 1 Peterson, 200 ft. S and E, NW cor. NE NE, Sec. 10-7-11 ..... Location.
L. K. McGuffin's No. 1 Bush, NW cor. NW SE, Sec. 1-7-11 ..... S.D. 400 ft.
Ben Merritt, tr.'s No. 2 Byrd, Sec. 1-7-11 ..... S.D. 88 ft.
Geo. Pipes, tr.'s No. 1 Byrd, Sec. 1-7-11 ..... Dry and abd. 2,610 ft.
Sabine Royalties Co., Inc.'s No. 1 Hill, 400 ft. S, 200 ft. E, NW cor. NE NE, Sec. 5-7-11 ..... Deepened to 2,546 ft; W.O.S.R.
Sabine Prod. Co.'s No. 2 Pearce, 858 ft. N, 530 ft. W, SE cor. SE NW, Sec. 10-7-11 ..... Completed June 7; flowing 25 bbls. 2,425 ft.
Sabine Royalties Co.'s No. 2 Hill, Sec. 32-8-11 ..... Drlg. 2,050 ft.
Eddie Seif's No. 1 Jacobs, Sec. 1-7-11 ..... Completed June 11; 30 bbls.; 2,472 ft.
A. F. Tarver's No. 1 Cutrer, 330 ft. S and E, NW cor., Sec. 12-7-11 ..... Tested oil show 2,650 ft; W.O.
The Texas Co.'s No. 1 A. L. Landrum, 330 ft. S and W, NE cor. SE, Sec. 32-8-11 ..... Location.
The Texas Co.'s No. 1 DeLatla et al, 1070 ft. W, 990 ft. N, SE cor., Sec. 3-7-11 ..... Dry and abd. 2,650 ft.
Houston-Sabine Prod. Co.'s No. 1 Sabine Lbr. Co. (was Triangle Pet. Co.'s No. 2 Sabine Lbr. Co.), 330 ft. N and E, SW cor., Sec. 36-8-12 ..... Set 6-in. 2,238 ft.

WEBSTER PARISH

Cassidy & Davis' No. 1 Nickerson, 300 ft. S, 300 ft. W, NE cor. SW, Sec. 29-23-10 ..... S.D. 150 ft.



STEP by STEP

Quality is Controlled

At each step — from wells to you — Pure Oil products are repeatedly tested for quality. Controlled production—controlled refining—controlled shipping. These are Pure Oil's assurance to you of uniform quality—delivery on the dot.

This vast organization is ready to go to work for you. For any petroleum product, just 'phone, wire or write nearest sales office and expect *action!*

The Company back of this advertisement can serve you well. Just ask any jobber who buys from Pure Oil.

REFINERIES:
Marcus Hook, Pa.
Cabin Creek Jct., W. Va.
Heath, Ohio
Ardmore, Okla.
Muskogee, Okla.
Smith's Bluff, Texas
Toledo, O.

SALES OFFICES:
Chicago
New York
Minneapolis
Philadelphia
Pittsburgh
Columbus, O.
Charleston, W. Va.
Norfolk, Va.
Atlanta, Ga.
Jacksonville, Fla.
Tampa, Fla.
Miami, Fla.
Pensacola, Fla.
Tulsa, Okla.
Beaumont, Tex.

PURE

PRODUCERS, REFINERS, MARKETERS OF A COMPLETE LINE OF PETROLEUM PRODUCTS

THE PURE OIL COMPANY, U. S. A.

ARKANSAS

UNION COUNTY—EL DORADO

Lion O. & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 246 ft. W, NE cor. Lot 5, NE, Sec. 4-16-15 ..... Cored sand showing oil 3,998-4,004 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... S.D. 2,608 ft.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. S½ NW, Sec. 11-18-13 ..... T.A. 3,586 ft.
Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13 ..... Location.
Wilson & Chapman's No. 1 Adkins, 330 ft. N and W, SE cor. SW NE, Sec. 3-18-13 ..... Drlg. gumbo 2,750 ft.

EAST TEXAS

HARRISON COUNTY

Calatex O. & G. Co.'s No. 6 Argus, 755 ft. N, 699 ft. W, Mile Post 27, in J. Womack Sur. ..... Location abd.

PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 14 Werner, 341 ft. S, 300 ft. W, NE cor. Werner 74-ac. tr., Ben C. Jordon Sur. ..... Set 9⅝-in. csg. 3,446 ft.
Daisy O. & G. Co.'s No. 1 Rucks, John Palmer Sur. ..... Drlg. 2,740 ft.
Dillon & Braham's (was W. G. Banks et al's) No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur. ..... S.D. 1,555 ft.
United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in B. C. Jordan Sur. ..... Location.
United Prod. Corp.'s No. 10 Warner, 388 ft. N, 2,467 ft. W, SW cor. Thos. Cox Sur. in Ben Jordon Sur. ..... Drlg. 4,200 ft.
Southwestern O. & G. Co.'s No. 1 E. R. Vinson, 3,005 ft. S, 1,001 ft. W, NE cor. C. T. Anderson Sur. ..... S.D. 2,650 ft.

MISSISSIPPI

HINDS COUNTY

Cleve Love et al's No. 2 Ridgeway-McGhee, SE cor. NW, Sec. 2-5-1e ..... Derrick.

WILDCAT OPERATIONS IN MISSISSIPPI

CLAY COUNTY
(Cable tools)

Company, farm and location—	Remarks:
Ohio Oil Co.'s No. 1 Cantrell, NE cor., Sec. 16-15-5	Drlg. shale 4,253 ft.

HINDS COUNTY

Attkisson & Dyer's No. 1 Downing et al, SE NE, Sec. 27-6-1 ..... S.D. 2,494 ft. in black shale.
Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e ..... S.D. 74 ft.
Southern Pet. Co.'s No. 1 Wilson (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-6-1e ..... S.D. 20 ft; W.O.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9 ..... S.D. for fuel 2,020 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 8-13-19 ..... S.D. 3,015 ft.
McAlpine et al's No. 1 Cowart, second hole, Sec. 2-12-19 ..... Drlg. hard lime 2,565 ft.

NOXUBEE COUNTY

Thompson & Donohue's No. 1 Donohue, Sec. 25-16n-17e ..... Moving in rig.

RANKIN COUNTY

Attkisson & Dyer's No. 1 Valentour, 200 ft. S, 200 ft. E, NW cor., Sec. 18-5n-2e ..... Rigging up.
Harding & Flint's No. 1 Webb, center Lot 32, Blk. B, East Jackson Place, Jackson City Subd., Sec. 12-5-1 ..... S.D. funds 880 ft.
R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e ..... S.D. 900 ft.
Cleve Love's No. 1 Muse, SE cor. SW SW, Sec. 32-7-4e ..... S.D. 4,000 ft.
Square Deal O. & G. Co.'s No. 1 Spann, NW cor. SE NE, Sec. 13-5n-1e ..... Derrick.
Union Drlg. Co.'s No. 1 Pate Royalty Co., NW cor. Lot 11, Blk. F, E. Jackson Pl., First Addn., Sec. 12-5n-1e ..... Derrick.
United Gas Public Service Co.'s No. 1-A Hartfield, Sec. 7-5n-2e ..... Began June 13; set 12½-in. 105 ft.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-8-9 ..... Derrick.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-2 ..... S.D. 1,990 ft; repairing rig.

WINSTON COUNTY

Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-12-14 ..... S.D. 3,310 ft.

YALOBUSHA COUNTY

Collett-Carter Oil Co.'s No. 2 Blackmur, 990 ft. W, 285 ft. N, C, Sec. 11-11-4 ..... S.D. 3,272 ft.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 38)

J. W. Cooper et al's No. 1 Cooper, NW SW, Sec. 35-11-10 ..... S.D. 3,156 ft.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10 ..... S.D. 1,518 ft.
C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10 ..... Tested dry; S.D. 1,380 ft.

RED RIVER PARISH

La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-12-11 ..... Spudded in; S.D. 50 ft.
Mack Jourden Co.'s No. 1 Lockett, 4,035 ft. S, 1,080 ft. E, NW cor. SW, Sec. 29, in Sec. 32-13-10 ..... Drlg. 1,735 ft.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 12-17-5 ..... Derrick.
Southern Carbon Co.'s No. 2 Rosengraut & Ducomb, 1,980 ft. N, 660 ft. E, SW cor., Sec. 19-17-6 ..... 7,653,600 ft. gas 2,450 ft.
Southern Carbon Co.'s No. 3 Rosengraut & Ducomb, 660 ft. S and E, NW cor., Sec. 30-17-6 ..... Drlg. 2,300 ft.
Southern Carbon Co.'s No. 1-B C. M. Noble, 2,966 ft. N, 1,526 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6 ..... Location.
United Gas Public Service Corp.'s No. 4 Earle, SE cor., Sec. 1-16-5e ..... 3,131,000 ft. gas 2,460 ft.

SABINE PARISH

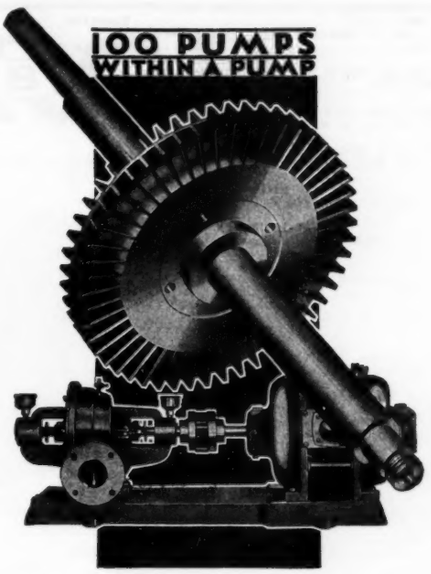
Diffie & Barnett's No. 1 Lites (was J. W. Clark's), 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11 ..... S.D. 105 ft.
R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 430 ft. S, 200 ft. W, NE cor. NW NW, Sec. 10-8-13 ..... Cored broken lime with show of gas 3,315 ft.
Lacey Prod. Co.'s No. 1 Cooper, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 30-8-11 ..... Abd. 2,620 ft.
J. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-9-13 ..... Set 8-in. 1,590 ft.
H. W. Perritt's No. 4 Bowman-Hicks, SE cor. SE NE, Sec. 2-7-13 ..... Drlg. 2,320 ft.
H. W. Perritt's No. 1 Boring, NW cor. NW NW, Sec. 11-7-12 ..... 40 bbls.; T.D. 2,602 ft.
Stovall Drlg. Co.'s No. 1 Nulton, SE cor. NW NE, Sec. 1-7-13 ..... Completed June 12; flowing 1,000 bbls. 2,357 ft.
A. H. Thames' No. 1 Edward est., 150 ft. NW SE cor. NE SE, Sec. 3-8-13 ..... S.D. for water 1,200 ft.

TENSAS PARISH

Nick Barbare's No. 1 Mutual Realty Co., 660 ft. S and W, NE cor., Sec. 26-11-9e ..... Drlg. 840 ft.
A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 29-11-12 ..... S.D. 3,545 ft.

UNION PARISH

Bahan & Bahan's No. 1 U. J. Jarmon, 720 ft. E, 2,329 ft. S, NW cor. NE, Sec. 27-23-3 ..... Began June 10; set 12-in. 120 ft; drlg. 1,950 ft.



Multi-vaned impeller ousts vibration menace

Now, you can even install and operate pumps close to delicate recording instruments.

Westco Turbine Pumps are vibrationless, due to their use of the simple, sound Turbine Principle. When liquid enters through Westco's Double-Suction Intake, it is equally distributed to BOTH sides of a Multi-vaned Impeller. A natural hydraulic balance is thus created. This characteristic eliminates all end-thrust at bearings; minimizes wear and ousts vibration.

Westco Turbine Pumps also possess the ability to deliver high pressures in single stage. They are the ideal, time-tested pumps for scores of refinery and natural gasoline plant duties.

Write *today* for complete engineering data and list of applications where you can use Westcos to an advantage.

SINGLE STAGE

WESTCO TURBINE PUMPS

HIGH PRESSURE

These features explain Westco's brilliant performance:

- Non-pulsating flow
- Can be economically furnished in special metals to withstand corrosion
- No metal-to-metal contact
- Entire absence of vibration
- No end-thrust due to perfect hydraulic balance
- Ball-bearing construction
- Only one moving part
- Higher pressures in single stage
- Can be directly connected to turbine or motor
- Compact—minimum floor space required
- Pump interior readily accessible without disturbing intake or discharge connections

WESTCO PUMP CORPORATION

(Name changed from Westco-Chippewa Pump Co.)

Factory and General Offices: Davenport, Iowa

Branches: New York, Chicago and San Francisco

Representatives in 50 principal cities.

© 1931, Westco Pump Corporation.

Dan Brooks' No. 1 Odus Douglas, 330 ft. S and E, NW cor. NE SW, Sec. 9-22-2 ..... Location.
T. P. Fields, tr.'s No. 1 Summitt Land Co., C W½ NW, Sec. 1-21-1w ..... Rigging up.

WEBSTER PARISH

Coyle, tr.'s No. 1 Frazer, 200 ft. N, 200 ft. E, SW cor. NE SE, Sec. 27-23-11 ..... Derrick.

WEST CARROLL PARISH

United Gas Public Service Co.'s No. 1 Pioneer Cooperage, 663 ft. E, 3,954 ft. S, NW cor., Sec. 29-21-9..... Drlg. 2,840 ft.

WINN PARISH

Gulf Ref. Co.'s No. 1-A Bodcaw Lbr. Co., 911 ft. N, 970 ft. E, SW cor., Sec. 4-10-5w ..... Set 12½-in. 940 ft.

ARKANSAS

CHICOT COUNTY

R. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 21-23-3 ..... T.A. 2,925 ft.

COLUMBIA COUNTY

Kendall Oil Co.'s No. 1 Fullenweider, Rhea & Kitchen, Sec. 13-17-22 ..... S.D. 778 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C NW SE, Sec. 4-20-3 ..... Repairing derrick 1,252 ft.

CLEVELAND COUNTY

Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12w..... Location.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... S.D. 3,740 ft.

DALLAS COUNTY

B. C. Brewer's No. 1 W. E. Hillman, 330 ft. E, 40 ft. S, NW cor. SE NE, Sec. 26-10-13 ..... S.D; W.O. 2,869 ft.
J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. NW NE, Sec. 11-9-15 ..... S.D. funds 2,520 ft.

GRANT COUNTY

Spann & McClung's No. 1 Sarah Page, 660 ft. W, 660 ft. S, NE cor. NW, Sec. 3-3-12 ..... Drlg. 1,074 ft.

HOT SRINGS COUNTY

Star Oil Co.'s No. 1 Cunningham (was J. R. Lockhart's), 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16.... Fishing for 2 joints D.S. 1,227 ft.

LAFAYETTE COUNTY

Smitherman & McDonald's No. 1 Rogers, 330 ft. N and E, SW cor. NW SE, Sec. 17-15-22 ..... S.D. 2,035 ft.

LINCOLN COUNTY

Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 220 ft. W, NE cor. NE SW, Sec. 5-8-7..... Reaming 1,477 ft; T.D. 2,000 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-29 ..... Location.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D; W.O. 3,570 ft.

MILLER COUNTY

East Texas O. & G. Co.'s No. 1 Harvey, 500 ft. E, 300 ft. S, NW cor., Sec. 2-15-26 ..... T.A. 910 ft.
E. & F. Oil Co.'s No. 1 E. L. Beck, 200 ft. S, 200 ft. E, NW cor. SW, Sec. 36-15-26 ..... T.A. 2,968 ft.
Fitzwater et al's No. 1 Beck, 200 ft. N, 200 ft. W, SE cor. SW SE, Sec. 33-15-26 ..... T.A. 93 ft.
J. D. McRae's No. 1 Smith, 150 ft. N, 150 ft. W, SE cor., Sec. 23-15-26 ..... Derrick.
W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-20-27 ..... Location.

OUACHITA COUNTY

Copenhaven et al's No. 1 Elliott, Sec. 11-15-17 ..... Bailed dry 2,210 ft; S.D; W.O.
Boling & McLeon's No. 1 L. D. Nealy, 150 ft. S, 150 ft. W, NE cor, SE SW, Sec. 25-16-15 ..... S.D; rig repairs 1,644 ft.

PIKE COUNTY

R. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-3-14 ..... T.A. 2,909 ft.
R. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-3-24 ..... Drlg. hard rock 860 ft.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... S.D; T.D. 1,436 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29 ..... S.D; waiting on csg. 1,860 ft.

UNION COUNTY

Chapman & Wilson's No. 1 A. H. Hadley, 330 ft. N, 330 ft. E, SW cor. NE SW, Sec. 3-18-13 ..... 600 ft. fluid 30% S.W. in hole; T.A. 3,570 ft.

VAN BUREN COUNTY

Glenn Kohle et al's No. 1 Scalan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13 ..... T.A. 50 ft.

WASHINGTON COUNTY
(Cable tools)

C. H. Willoughby's No. 1 Jones, Sec. 24-16-30..... S.D. for funds 1,795 ft.
H. H. Taylor et al's No. 1 Runny, C NE SW, Sec. 1-13-29. Dry and abd. 1,702 ft.

YELL COUNTY
(Cable tools)

Tegmeier & Luckett's No. 1 Falcon, Sec. 26-7-21..... S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Devore & Midfield's No. 1 Roy B. Cooper, 200 ft. S, 200 ft. W of NE cor. R. B. Cooper 115-acre tract, Wm. Ward Sur. ..... Drlg. 2,630 ft.
Hindeman & Ball's No. 1 Merritt (was Maud-Redwater Oil Co.'s), 175 ft. N, 175 ft. E, SE cor. G. W. Hardidge 100-acre tract on Floyd Merritt tract in Y. S. McKinney Sur. ..... S.D. 2,520 ft.
Tarkington & Jones' No. 1 W. W. Whybark, 200 ft. S, 200 ft. W of SW cor. J. H. Dyer Sur. ..... Derrick.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... S.D; W.O. 3,000 ft; shale.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr. in J. H. Murphy Sur. ..... S.D. 3,600 ft.

CASS COUNTY

E. K. Atkinson's No. 1 T. J. Wilson, 1,088 ft. S of N line, 2,376 ft. E of W line of H.R.S., J. R. McFarland Sur. ..... Moving in rig.
R. G. Baker's No. 1 W. R. Caver, on W. R. Caver 75-ac. tr., John Lick Sur. ..... S.D. 2,630 ft.
Davis & Pigg's No. 1 Roy Brian, SW cor. Roy Bryan 38-ac. tr., Albert H. Latimer Sur. ..... S.D. 1,975 ft.
Everts Drlg. Co.'s No. 1 H. W. Whittington, 200 ft. S and W, NE cor. 69-ac. Whittington tr., L. Strong Sur. ..... Set 12½-in. 80 ft; S.D. 800 ft.
Geo. McKamie's No. 1 R. E. Hall, 150 ft. N, 150 ft. W, SE cor. Hall's 117-ac. tr., H. Buckler Sur. ..... Coring 3,250 ft.
C. E. Murdock's No. 1 First National Bank, Evans Watson Sur. ..... S.D. 3,990 ft.
John Nelson's No. 1 T. A. Irvin, McNary Harris Sur., 200 ft. S and E of NW cor. ..... Rigging up.
Olds & Smith's No. 1 Atheny, 3,056 ft. W-E line, 356 ft. S-N line, J. C. Byers Sur. ..... S.D. 2,684 ft.
John C. Rogers' No. 1 L. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur..... S.D. 2,275 ft.
John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur. ..... S.D. 955 ft.

HARRISON COUNTY

Ben Banner's No. 1 J. C. Lowery, in center of J. C. Lowery 8-ac. tr., W. D. Stanfield Sur. ..... Drlg. hard chalk 3,130 ft.
Everett Prod. Co.'s No. 1 R. L. Cypert, 1,320 ft. W of NE cor., 150 ft. at right angles from NE cor. of E. M. Wilder Sur. in Richard Hooper Sur. ..... Drlg. lime 3,310 ft.
Gholson et al's No. 1 Bivins Farm Co., on J. K. Bivins, Jr.'s 320-ac. tr., Thos. Toby Sur. ..... S.D. shale 1,300 ft.
O. O. Olford et al's No. 1 R. W. Bolding, 330 ft. E of SE cor. J. B. Cullen's 161-ac. tr., 300 ft. N of N line of Mrs. C. L. Brown's 20-ac. tr., W. W. O. Stanfield Sur. ..... S.D. 2,050 ft.
O. H. Parkening's No. 1 T. J. Taylor, C, Blk. 31, W. H. Payne Sur. ..... S.D. 2,530 ft.
Ryan Consolidated Pet. Corp.'s No. 1 Dr. H. H. Key, 1,500 varas N of SE line, 500 varas E of SW line, of E. Carroll Sur. ..... Set 9-in. csg. 2,822 ft.
Thomas & Kinsey's No. 1 J. R. Watson, Thos. Iden Sur... Derrick.

MARION COUNTY

Gist, Claunch & Dodson's No. 1 Miller, 1,470 ft. E line, 725 ft. N line, SW cor. H. Fulgran H.R. Sur..... Rigging up.
Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 2,555 ft. E most easterly W line, Alexander Albright Sur. ..... S.D. 2,380 ft.
Hindeman & Rhondo's No. 1 McGaughey, 1,547 ft. W most northerly SW cor., 1,635 ft. N most northerly S line, W. J. Willis Sur. ..... Drlg. 3,886 ft.
Shelton et al's No. 1 J. M. McNeal, 800 ft. S, 400 ft. W, NE cor. McNeal's 721-ac. tr., R. Fowler Sur..... Coring 3,171 ft.

PANOLA COUNTY

Hoffer et al's No. 1 Cameron Lbr. Co., center 1,306-ac. tr. in W. M. A. LaGrove Sur. ..... Derrick.
Moses & Wallace's No. 1 Daniel, 600 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur... Derrick.
Jeffus & Lee's No. 1 Latham, Wm. Rich Sur..... S.D; changing to heavy rig 550 ft.
J. L. Nelson et al's No. 1 J. W. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in Jas. Hanks Sur. ..... Moving in rig.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur..... S.D. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur..... S.D. 2,280 ft.

SHELBY COUNTY

I. M. Bradley's No. 1 Ashberry (no check), G. W. Mitchell Sur. ..... Cored sandy lime and shale 3,004-09 ft.
E. L. Chapman's No. 1 Pickering Lbr. Co., C. E. Henry (headright) ..... Drlg. hard lime 3,804 ft.
Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur..... Reaming to bottom; T.D. 3,111 ft.
H. P. Glidden's No. 1 Pickering Lbr. Co., Jonas Harrison Sur., 300 ft. E of NW cor., 150 ft. S of N line at right angles Pickering 59-acre tract ..... Rigging up.
H. H. Gracey's No. 1 J. A. Morrison, 1,500 ft. N, 200 ft. E, SW cor. J. A. Morris' 109-ac. tr., Wm. English Sur. ..... S.D. for water 2,511 ft.
Wm. A. Stephens' No. 1 Foster & Billingsly, 150 ft. W of CEL Foster & Billingsly's 109-ac. tr., J. Bowlin Sur... S.D. 1,540 ft.
T. A. Martin's No. 1 J. B. Bush, S 8° E, 2,000 ft. from NW cor. J. B. Bush's 77-ac. tr., thence E at right angles to said line 200 ft., Alfred Lindsey Sur..... Derrick.
Henry Maulding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 80-ac. tr., A. D. Fountain Sur. ..... Changing rig 1,880 ft.
George N. Pace's No. 1 E. H. Powers, western J. Timms Sur., 150 ft. E of W line, 200 ft. N of S line Powers 126-acre tract ..... Derrick.
Ridgeway et al's No. 1 Polley, Domingo Gonzales Sur., 3,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-acre tract ..... Derrick.
Schultz et al's No. 1 Hughes, 150 ft. SW cor. Hughes' 110-ac. tr., J. Clay Sur. ..... Repairing rig 2,640 ft.
Sloan Prospecting Co.'s No. 1 Sanford, approximately 300 ft. N and 200 ft. E, SW cor. B. Sanford 49-ac. tr. in M. M. Vann Sur. ..... S.D; laying water line 2,906 ft.
Sloan Prospecting Co.'s No. 1 Windham, H. English hrs. ..... Set 4½-in. 3,294 ft; fishing D.S. 3,399 ft.
C. H. Tautenhahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E, NW cor. J. C. Bogard's 52-ac. tr., Thomas Baker Sur. ..... S.D. 20 ft; clearing titles.
Tenant et al's No. 1 J. Henry, C. Z. Walker Sur..... Derrick.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 42)

The Texas Company's No. 3 Kuhn, 587 ft. S and 150 ft. W of NE cor. of the Mary E. Hall Sur. No. 3... Location.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 21 Cade, Fitzsimmons Sur., 150 ft. W of No. 17 ..... Sand and shale showing oil 4,323 ft.; cem. 7⅝-in. casing.

HULL—LIBERTY COUNTY

Sun Oil Co.'s No. 8 Carr (D.D.), Jesse Devore Sur., 50 ft. from W line and 100 ft. from S line of tract .... T. D. 1,884 ft.; cutting liner to deepen.
Weneedan Oil Co.'s No. 1 Palmer, Chas. Underton Sur., 150 ft. from N line and 200 ft. from E line of tract... No report.

NORTH DAYTON—LIBERTY COUNTY

Harrison-Abercrombie's No. 2 Jones, H.&T.C. Sur. No. 125, 50 ft. from N line and 450 ft. from E line of tract ..... Drlg. sticky shale 2,189 ft.

DAMON MOUND—BRAZORIA COUNTY

D. C. Wellock's No. 1 Hamon, John P. Mills Sur., 1,115 ft. NE line and 60 ft. W line Blk. 1 ..... Drlg. sandy shale 612 ft.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 6 Jamer, J. F. Perry Sur., 600 ft. NW No. 5 and 1,200 ft. from SW line ..... Sand 1,288 ft.; cem. 8-in. casing 1,253 ft.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Oil Co.'s No. 7 Davis, David Kokernot Sur., 100 ft. S of No. 4 ..... Fishing 5,880 ft.
Cranfill-Reynolds Oil Co.'s No. 19 Esperson, C. W. Fisher Sur., 400 ft. E No. 9 and 550 ft. N No. 14.... Drlg. shale 3,348 ft.

BLUE RIDGE—FORT BEND COUNTY

Teleschow, Cady et al's No. 5 Blakely, E. Drew Sur., 90 ft. E, 150 ft. S of NW cor. of E half, Lot 4, Blk. F... Shale 3,105 ft.; temp. aband.

ORANGE—ORANGE COUNTY

Gulf Prod. Co.'s No. 1 K. Kishi, J. Dyson Sur., 378 ft. from E line and 234 ft. from S line of tract ..... Drlg. gumbo 2,849 ft.
Jefferson Production Co.'s No. 1 Bland ..... Drlg. sandy shale 1,896 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 14 Boyt, H.&T.C. Sur. No. 22, 500 ft. N of No. 10 ..... Sand and shale 4,144 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 118-A Cotton ..... Comp. 60 bbls. oil 456 ft.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

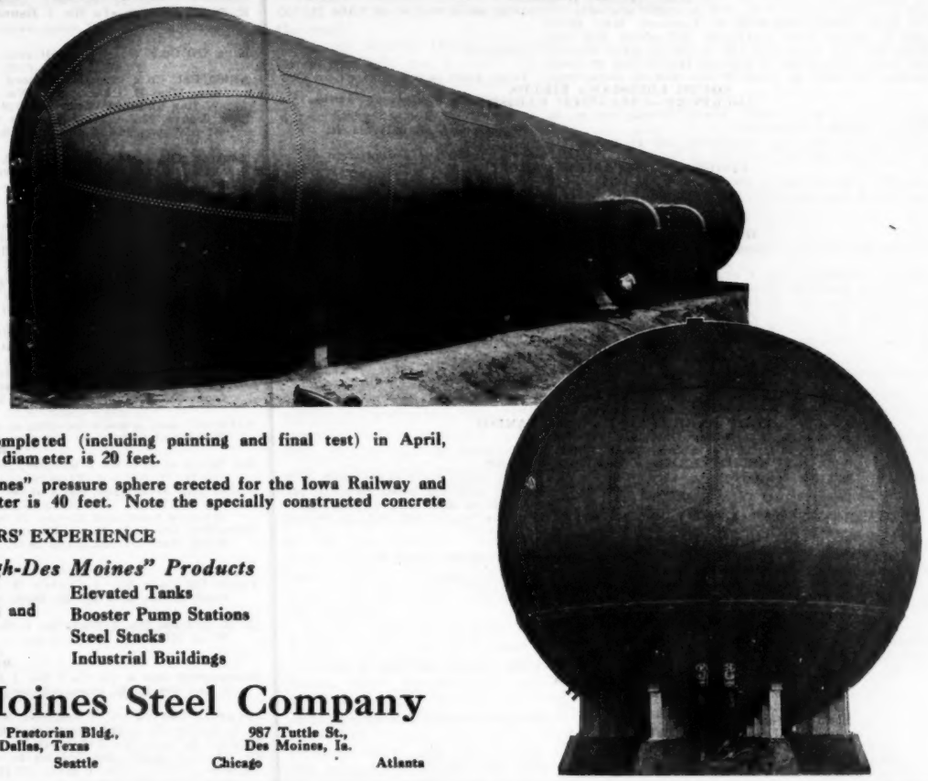
Humble Oil & Ref. Co.'s No. 7 Sterling, J. McFaddin Sur., 350 ft. S and 100 ft. W No. 6 Sterling ..... Drlg. sand 6,346 ft.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 10 Wilson Heard, Refugio town tract, 150 ft. from N line and 150 ft. from E line of S 50-acre tract ..... Sand showing oil 3,650-57 ft.; cem. 6¾-in. casing 3,650 ft.; drlg. plug to set screen.
Houston Oil Co.'s No. 5 Mrs. M. H. Ryals, Refugio town tract, 150 ft. from N line of tract and 527 ft. east of No. 1 ..... Total depth 3,655 ft.; plugged to 3,648 ft.; set 32½-ft. screen and swabbed salt water; to plug back.
Houston Oil Co.'s No. 6 Pratt-Hewitt-Rooke (D.D.), Thomas Mullen Sur., 1,150 ft. N and 200 ft. W of SE cor. of tract ..... Sand showing oil 3,705 ft.; cmtd. 5 3/16-in. csg. 3,678 ft.; drilled plug and set 16½-ft. screen.
Mission Drilling Co.'s No. 2 J. J. O'Brien, Refugio town tract, 150 ft. from E line and 150 ft. from S line 1½-acre tract ..... Drlg. shale 4,054 ft.
T. P. Morgan's No. 1 Lambert, Refugio town tract, 450 ft. from N line and 650 ft. from W line of 105-acre tract ..... Drlg. shale and streaks of lime 1,720 ft.

PITTSBURGH DES MOINES

Gas Holders and Pressure Spheres



TO secure a better idea of its size, compare this big gas holder with the man's figure standing midway of its length of 110 feet.

This "Pittsburgh-Des Moines" holder was completed (including painting and final test) in April, 1931, for the City of Richmond, Virginia. Its diameter is 20 feet.

At the right is shown a "Pittsburgh-Des Moines" pressure sphere erected for the Iowa Railway and Light Corporation at Ames, Iowa. Its diameter is 40 feet. Note the specially constructed concrete foundations and steel supports.

38 YEARS' EXPERIENCE

Other "Pittsburgh-Des Moines" Products

Oil Storage Tanks—field erected
Gasoline Tanks—for service stations and bulk plants
Steel Pipe Lines
Oil Refinery Equipment
Elevated Tanks
Booster Pump Stations
Steel Stacks
Industrial Buildings

Pittsburgh-Des Moines Steel Company

3486 Neville Island, Pittsburgh, Pa.
1291 Praetorian Bldg., Dallas, Texas
987 Tuttle St., Des Moines, Ia.

New York San Francisco Seattle Chicago Atlanta

15 to 5000 Gallons per Minute

THE SHORT CUT to LOW-COST WATER

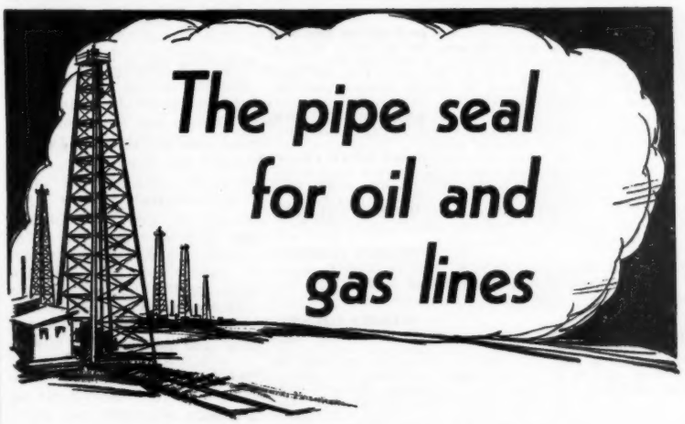
for Refineries, Gasoline Plants and Drilling Operations

You cannot afford to operate pumping "contrivances" that fail to produce *low-cost* water. Pomona Turbine Pumps show lowest power costs and minimum upkeep costs over many years. Exclusive features contributing to Pomona's outstanding performance include: Goodrich cutless bearings, built-in Westinghouse motors, variable capacity impellers and non-corrosive stainless steel pump shafts. Pomona offers the short cut to cheapest water.

DISTRIBUTORS
U. S. WIND ENGINE & PUMP COMPANY
11th & Hickory Sts., Kansas City, Missouri
THE SHULER COMPANY
1138 West 37th St., Oklahoma City, Oklahoma
SOUTHERN ENGINE & PUMP COMPANY
615 Washington Avenue, Houston, Texas
(Ask for Catalog)

POMONA PUMP CO., Pomona, California

POMONA TURBINE PUMPS



NEITHER oil nor gasoline, benzine, naphtha or tar will dissolve or damage Dixon's Graphite Seal, the sealing paste that makes either screw or flange joints stay tight.

Heat cannot damage it. Pressure cannot blow it out. Suction cannot pull it in. Vibration cannot shake it loose. And it will not taint or discolor what flows through the line.

Easy to use—thin it with water. Keeps without spoiling.

Graphite in it—Flake graphite—Dixon's Flake Graphite.

JOSEPH DIXON CRUCIBLE COMPANY

Established 1827

Jersey City New Jersey

DIXON'S GRAPHITE SEAL

5526

Pearson Properties' No. 5 Ryals, 174 ft. from S line of lease and 475 ft. E of No. 3 ..... Drlg. hard shale and lime 4,794 ft.
United Prod. Corp.'s No. 6 O'Brien, 150 ft. from S line of tract, 350 ft. W No. 3 ..... Drlg. lime and shale 5,740 ft.
United Prod. Corp.'s No. 3 Mitchell, 150 ft. from N line and 609 ft. from W line of tract ..... Total depth 6,458 ft.; plugged to 6,435 ft.; to perforate 5 3/16-in. csg. in sand 6,411-21 ft.
United Prod. Corp.'s No. 1-B W. J. Fox, Wm. Hews and L. Brown Sur., 2,541.7 ft. NE along SE line from SE cor. lease and 330 ft. NW at right angles ..... Drlg. sand and rock 1,100 ft.
United Prod. Corp.'s No. 4 M. F. Lambert, Wm. Hews and L Brown Sur., 2,514.7 ft. NE along NW line from SW cor. lease and 330 ft. SE at right angles... Location.
United Prod. Corp.'s No. 5 Holmes Heard, 660 ft. from N line and 2,375 ft. from W line Blk. 8, town tract.. Drlg. hard sand 2,248 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co.'s No. 7 State, 319 ft. N and 260 ft. W SE cor. NE Sec. 8-10s-9w ..... Drlg. sticky shale 6,747 ft.
Vacuum Oil Co.'s No. 5-A Farquahar, 105 ft. S and 110 ft. E of NW cor. SW NE Sec. 8-10s-9w ..... Cem. 18-in. surface pipe 70 ft.

EDGERLY—CALCASIEU PARISH

Rex Pet. Co.'s No. 2 Prairie Narroni, Sec. 21-9s-11w, 360 ft. from S line and 50 ft. from E line of lease ..... Total depth 4,143 ft. in salt; sidetracked to 4,060 ft.; set 10 ft. 3-in. screen; tested salt water.

HACKBERRY—CAMERON PARISH

R. E. Seiss' No. 2 J. M. Vincent ..... Total depth in rock 2,042 ft.; cmtd. 6⅝-in. csg. 2,004 ft.
The Texas Company's No. 8 State ..... Derrick.
Yount Lee Oil Co.'s No. 34 State ..... Location.
Yount Lee Oil Co.'s No. 36 State ..... Location.
Yount Lee Oil Co.'s No. 37 State ..... Location.
Yount Lee Oil Co.'s No. 38 State ..... Location.
Yount Lee Oil Co.'s No. 39 State ..... Location.

VINTON—CALCASIEU PARISH

Marrs McLean's No. 1 Gray (D.D.), Sec. 33-10s-12w ..... Set 16 ft. 3-in. screen 2,695 ft.; bailing.
Vinton Pet. Co.'s No. 7 Matilda Gray (D.D.), 157 ft. N and 674 ft. W of SE cor. SW NE of Sec. 33-10s-12w.. Drlg. sand 3,121 ft.

FORT BARRE—ST. LANDRY PARISH

The Texas Company's No. 10 Botney Bay, Sec. 4-6s-5e, 100 ft. S line and 100 ft. E line, Daniel 55-ac. tract... Drlg. 1,600 ft.

SWEET LAKE—CAMERON PARISH

Magnolia Pet. Co.'s No. 2 Sweet Lake, Sec. 5-13s-7w ..... Total depth 4,874 ft.; rebuilt derrick and rig after fire; to resume drlg.
Pure Oil Co.'s No. 5 Yount Lee (D.D.), Sec. 12-13s-8w... Fishing screen and liner to deepen 5,658 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 762 fee (D.D.), Sec. 29-9s-10w... Temp. aband. 3,490 ft.
Union Sulphur Co.'s No. 767 fee, 328 ft. E and 180 ft. N of C Sec. 29-9s-10w ..... Drlg. 3,020 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Parmerson & Cafferkey et al's No. 1 W. M. Schlecta, John Fitzgibbons Sur., 1,350 ft. from SE line and 3,100 ft. from NE line of survey ..... Drlg. gumbo and lime 1,506 ft.

BRAZORIA COUNTY

The Texas Company's No. 1 Belcher, Manvel, 167 ft. SE of NW line and 323 ft. NE of SW line, Lot 18, Blk. A, Suburban Gardens Subd. ..... Drlg. hard sand and lime 2,572 ft.
United North & South Oil Co.'s No. 1 Daisy B. Lewis, S. F. Austin 5 league, 566 ft. S and 325 E from NW cor. 100-ac. tract ..... Drlg. gumbo 1,639 ft.
United Oil Syndicate's No. 1 Levitt, 900 ft. from W line and 400 ft. from S line of John Peake Sur. ..... Rig.
United Oil Syndicate's No. 1 Speer, A. A. Talmadge Sur... Set 48 ft. 4½-in. screen 1,866 ft.; bailed salt water; plugged to 1,841 ft.; abandoned.

BURLESON COUNTY

Reynolds Oil Co.'s No. 1 Harris, 500 ft. from W line and 400 ft. from N line of J. M. McKean Sur. ..... Shut down 400 ft.
J. E. Stubblefield's No. 1 J. B. Mitchell, 81 ft. SW and 4,340 ft. SE of S cor. of Joseph Henson Sur., in A. T. Woolridge Sur. ..... Drlg. gumbo 523 ft.

CALHOUN COUNTY

The Texas Company's No. 1 Smith, J. Timmins Sur., Will Mousin and Driscoll Subd. ..... Drlg. sand and shale 6,270 ft.

FORT BEND COUNTY

Cullen & West and Gulf Prod. Co.'s No. 1-A Lockwood, Lockwood, John Rabb Sur., 300 ft. out of SW cor. 333-acre tract ..... Drlg. sticky shale 3,425 ft.

GRIMES COUNTY

Rianjo Oil Co.'s No. 2 Cuthrell, Pat B. O'Connor Sur., center of 110-acre tract ..... Rig.

HARDIN COUNTY

Plummer & McDaniel's No. 1 T. S. Reed, 2,500 ft. from W line and 500 ft. from N line of T.&N.O. Sur. No. 396 ..... Shut down in gumbo and lime 1,326 ft.

HARRIS COUNTY

Hattie Baldwin's No. 1 Krahn, 250 ft. out of NW cor. L. Finn Sur. ..... Drlg. sand 492 ft.
Cypress Oil & Dev. Co.'s No. 1 C. Fritz, 500 ft. from N line and 500 ft. from E line of J. Duckworth Sur. ... Drlg. gumbo 1,162 ft.
Humble Oil & Ref. Co.'s No. 5 Minnetex, Mykawa, 150 ft. from S line and 200 ft. from W line, Lot 261, Wm. Lovett Sur. ..... Location.
Humble Oil & Ref. Co.'s No. 6 Minnetex, Mykawa, Wm. Lovett Sur., C of Lot 254 ..... Drlg. hard sand shale 5,572 ft.

JACKSON COUNTY

Chicago-Gulf Co.'s No. 1 Rogers (workover) ..... Drill stem test 2,952 ft. showed dry gas, 1,100 lbs. pressure; cem. 6⅝-in. casing 3,945 ft.

LIBERTY COUNTY

J. R. Ingram's No. 1 C. T. Palmer, James Fenner Sur., 1,000 ft. from W line and 850 ft. from S line of tract.. Drlg. gumbo 799 ft.
Hamm et al's No. 1 Harvard, Davis Hill ..... Gumbo 1,015 ft.; shut down.
Tucker et al's No. 1 Bell, H.&T.C. Sur. No. 4 ..... Drlg. gumbo 1,008 ft.

MATAGORDA COUNTY

H. C. Cockburn's No. 3 Hawkins, Shepherds Mott, 4,510 ft. SE along SW line of Farnum Fry Sur., thence 242 ft. NE at right angles ..... Sand and shale showing oil 4,866 ft.; top sand 4,863 ft.

MONTGOMERY COUNTY

Mike Hogg's (Lake Creek Oil Co.'s) No. 1 Hunt, south of Conroe ..... Abandoned in shale 4,725 ft.
H. W. Lowrie, Jr.'s No. 1 Groggan (G. J. Sunday), Cyrus Wickerson Sur. ..... Drlg. shale and lime 3,771 ft.
Price & Wilhite's No. 2 Juerges ..... Drlg. shale 4,537 ft.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 250 ft. from E line of tract ..... Formerly temporarily abnd. 4,603 ft.; sidetracked hole 1,200 ft.; drilled to 1,820 ft.; shut down.
Crew Oil Co.'s No. 1-A Mansfield, 50 ft. E of No. 1 ..... Drlg. water sand 1,185 ft.

POLK COUNTY

Freeman et al's No. 2 Freeman ..... Shut down 2,124 ft.
T. B. Hoffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 271 ..... Location.
Sunshine Oil Co.'s No. 1 Olliver, A. Viesca Sur., 600 ft. NE along SE line from S or SW cor. of 50-acre tract and thence 200 ft. NW at right angles ..... Location.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Damaan, 150 ft. from N line and 150 ft. from W line of Blk. 16, Bonnie View Ranch Subd. ..... Sand 4,166-72 ft.; drill stem test showed salt water.
Humble Oil & Ref. Co.'s No. 1 O'Connor, John Keating Sur., 6,012 ft. S from NE cor. along SE line of Lon T. Rios Sur., thence 7,375 ft. W at right angles in John Keating Sur. ..... Location.

SAN JACINTO COUNTY

E. P. Edward et al's No. 1 Bennett, northwest of Cold Springs ..... Spudded and shut down.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell ..... Sand and shale showing oil 1,351 ft.; cmtd. 6-in. csg. 1,318 ft.
Allied Pet. Co.'s (Texas Southern Pet. Co.'s) No. 3 Wilson, Mrs. E. Cherry Sur. No. 795, 1,500 varas from W line and 600 varas from N line ..... Drlg. shale 4,947 ft.
Lew Wentz' No. 1 Mann, James Seals Sur., 330 ft. out of SW cor. 804.25-acre tract ..... Drlg. sandy shale 2,575 ft.

VICTORIA COUNTY

Houston Oil Co.'s No. 1 Conrad, T.&N.O. Sur. No. 1, 1,100 ft. from SW line and 100 ft. from NW line .... Drlg. rock 3,924 ft.
Simpson-Fell and Westheimer et al's No. 1 Levi, 2,200 ft. from SW line and 2,000 ft. from NW line of S.A.&M.G. Sur. No. 4 ..... Drlg. hard sand 4,519 ft.
T. B. Slick estate's No. 1 McFaddin, J. Vairan Sur., 17,700 ft. NE along SE line from S cor. of survey and thence 5,050 ft. NW at right angles ..... Set 21 ft. 4½-in. screen 3,512 ft.; well blew in est. 50,000,000 ft. gas, 1,500 lbs. pressure; blew screen to top of hole; trying to kill pressure and reset screen on bottom full string of liner.
The Texas Company's No. 3 McFaddin, S 15° W 6,200 ft. and N 75° W 1,850 ft. out of NE cor. John M. Rine Sur. ..... Drlg. sand and boulders 707 ft.
United Prod. Corp.'s No. 4-A McFaddin, M. Traviesa Sur., 1,320 ft. W along N line of C. L. Mann Sur. from NE cor. and 1,980 ft. N at right angles ..... Drlg. shale 3,541 ft.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-acre tract ..... Rig.

WASHINGTON COUNTY

Joe Baker et al's No. 1 Kramer, Brenham, 600 ft. S and 300 ft. W NE cor. 92 acres ..... Drlg. shale 2,656 ft.
Fisher and associates' No. 1 H. P. Scholtz, S. F. Austin Sur., 1,100 ft. NW along NE line from SE cor. of 107-acre tract and thence 12 ft. SW at right angles.. Drlg. gumbo and lime 270 ft.
Penn-Tex. Oil Co.'s No. 2 Kamas Brenham, S. M. Williams Sur. ..... Drill stem test of sand 3,020-21 ft. showed mud with slight show gas.
Vegus Oil Co.'s No. 1 Graves, S. Clampit Sur., 200 ft. from N line and 900 ft. from W line 111-acre tract.. Drlg. gumbo and shale 2,296 ft.

WHARTON COUNTY

H. H. Givens' No. 3 Hudgins, I. B. Phillips Sur., 19 ft. W of No. 2 ..... Shut down in shale 3,205 ft.

SOUTH LOUISIANA

BEAUREGARD PARISH

Beauregard Gas & Oil Co.'s No. 1 J. E. Cochran, 400 ft. S and 700 ft. W from NE cor., Sec. 34-4s-12w ..... Temp. aband. 3,087 ft.

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... Shut down 875 ft.
J. O. Davis' No. 1 Industrial, Sec. 29-9s-10w ..... Standing 6,568 ft.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... Shut down 3,258 ft.
Dr. Thomas et al's No. 1 John Hewitt ..... Location.
Vacuum Oil Co.'s No. 1 Watt (D.D.), 225 ft. out of SE cor. Sec. 12-9s-7w ..... Drlg. shale 6,367 ft.

CAMERON PARISH

Vacuum Oil Co.'s No. 2 Cameron Meadows, 3,120 ft. S and 1,900 ft. W from NE cor. Sec. 21-14s-9w (500 ft. S No. 1) ..... Drill stem test stuck 4,312 ft.
The Texas Company's No. 7 State, Calcasieu Lake ..... Location.

IBERIA PARISH

Jefferson Lake Oil Co.'s No. 11 Lake Peigneur, Jefferson Island ..... Abandoned 869 ft.
Jefferson Lake Oil Co.'s No. 13 Lake Peigneur, S 84°, W 3,100 ft. from NE cor., Sec. 53-12s-5e, thence 150 ft. N ..... Abandoned 850 ft.
Jefferson Lake Oil Co.'s No. 16 Lake Peigneur, Jefferson Island ..... Abandoned 857 ft.

IBERVILLE PARISH

Standard Oil Co.'s No. 1 Gay, Bayou Choctou ..... Sand showing oil 4,353 ft.; reaming to set 4½-in. casing.
Standard Oil Co.'s No. 7 Wilbert, Bayou Blue ..... Derrick.
Standard Oil Co.'s No. 6 Schwing, Bayou Blue, Sec. 73-9s-11e, 317 ft. S of No. 2 ..... Drlg. sand 2,960 ft.
Standard Oil Co.'s No. 7 Schwing, Bayou Blue, Sec. 74-9s-10w, N 45°, W 1,800 ft. from No. 5 ..... Total depth 1,350 ft.; sand showing oil 1,307-12 ft.; shut down pending completion No. 6.

PLAQUEMINES PARISH

Humble Oil & Ref. Co.'s No. 4 Cockrell-Moran, Sec. 14-20s-26e, 1,905 ft. S and 2,860 ft. E of station ..... Cap rock 1,074-1,158 ft.; 9⅝-in. casing 1,141 ft.; set 1 joint 7-in. (O.D.) screen; bailed dry; pulled screen and well came in flowing 500 bbls. pipe line oil first 12 hours on ¾-in. choke; pinched to ⅛-in. choke, flowing 10 bbls. hourly; gravity 19.1 degrees; temp. 85°.

TERREBONNE PARISH

The Texas Company No. 6 State, Caillou Island ..... Total depth 4,486 ft.; sidetracking sticky shale 4,060 ft.
The Texas Company's No. 1 La.L.&E., Bay St. Elaine ... Total depth 5,581 ft.; to set 9⅝-in. casing.
The Texas Company's No. 4 State, Dog Lake ..... Caprock 4,580 ft.; abandoned.
The Texas Company's No. 3 La.L.&E., Bay Junop ..... Location.
The Texas Company's No. 4 La.L.&E., Bay Junop ..... Location.
The Texas Company's No. 6 State, Lake Barre ..... Salt 3,848-4,001 ft.; straightening hole.
The Texas Company's No. 10 State, Lake Barre ..... Location.
The Texas Company's No. 11 State, Lake Barre ..... Location.
The Texas Company's No. 12 State, Lake Barre ..... Location.
The Texas Company's No. 13 State, Lake Barre ..... Shale 3,854 ft.; cem. 9⅝-in. casing 3,798 ft.
The Texas Company's No. 14 State, Lake Barre ..... Location.

VERMILLION PARISH

Pure Oil Co.'s No. 1 Alliance Land, Sec. 34-11s-1w, 2,600 ft. N and 300 ft. E of SW cor. section ..... Drlg. coarse sand 4,520 ft.

WEST FELICIANA PARISH

Putnam Syndicate's No. 2 Como Plantation, Sec. 51-1s-4w. Shut down for repairs 1,776 ft.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 34)

Peters & Buckles' No. 1 Hayes, NW NE NW Sec. 24-28-3 ..... Wilcox 2,662-66 ft.; water; P. B. to 2,185 ft.; after shot no results; will abandon.
Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE Sec. 9-27-2 ..... Cleaning out 2,693 ft.
Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w ..... Rig on ground.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE Sec. 8-7-18w ..... Shut down 425 ft.

LATIMER COUNTY

P. English's No. 1 Unknown, NW SE Sec. 16-6-19 ..... Shut down 1,542 ft.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Drlg. 5,712 ft.

MURRAY COUNTY

C. R. Williams et al's No. 1 Williams, C NE NE Sec. 21-1-4 ..... Shut down 884 ft.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19 .... Shut down 1,011 ft.

OKFUSKEE COUNTY

E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 ..... Location.
Shepard et al's No. 1 Nevens, SE NW SW Sec. 3-12-10.. Shut down 3,690 ft.

OKLAHOMA COUNTY

Cittizens Oil Co.'s No. 1 Sage Barber, NE cor. Sec. 21-11-3w ..... Shut down 1,200 ft.
L. C. Elvick's No. 1 Sunset Addition, NW SW NW Sec. 17-11-3w ..... Shut down 5,515 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE NW SE Sec. 17-12-4w ..... Shut down 6,700 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW Sec. 6-20-5 ..... Shut down 1,950 ft.
Sperry et al's No. 1 Mullrap, SE SW Sec. 2-22-5 ..... Drlg. 3,190 ft.
Cochran et al's No. 1 Green, NE cor. SW Sec. 15-23-5 .... Rig.

PITTSBURG COUNTY

J. Morrison's No. 1 Fowler, NE SE Sec. 13-7-17 ..... Rig.
C. Kennedy's No. 1 Travis, C SW NE Sec. 15-7-14 ..... Rig.
C. Canady's No. 1 Jones, NW cor. Sec. 14-8-14 ..... Rig.

POTTAWATOMIE COUNTY

Droppleman et al's No. 1 Jones, SE NW Sec. 21-8-3 .... Shut down 4,878 ft.; show oil.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW Sec. 23-12-24w ..... Drlg. 4,950 ft.
L. C. Elvick's No. 1 Davis, C NW NE Sec. 4-11-26w .... Fishing 2,956 ft.; show oil.

SEMINOLE COUNTY

Sunray Oil Co.'s No. 1 Sunray, NW SE Sec. 35-5-5 ..... Location.

STEPHENS COUNTY

Ross Southerd's No. 1 McKinney, NE cor. Sec. 25-1-5w .. Shut down 1,062 ft.

WASHITA COUNTY

Cooper & Terhune's No. 1 Blocker, NW cor. Sec. 29-8-19w. Shut down 1,875 ft.
Burns & Prince's No. 1 Deck, SW cor. Sec. 21-8-18 .... Shut down 1,050 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Westora Prod. Co.'s No. 1 Gable, C NE Sec. 24-4-13 .... Drlg. 621 ft.
Three Way Oil Co.'s No. 1 Crane, SW NW Sec. 11-1-1E .. Drlg. 4,700 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

R. P. Whelan et al's No. 1 Howard, NW SE NW Sec. 6-4s-11 ..... Shut down 580 ft.
Brookshire's No. 1 R. W. Rowland, NW NE SE Sec. 18-3s-10 ..... Shut down 400 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW Sec. 7-7-10.. T. D. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 ..... T. D. 740 ft.; plugged back to 450-80 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE Sec. 13-4s-8w ..... Location.
C. V. Chenault et al's No. 1 Grogan, SW NE SE Sec. 15-7s-6w ..... Shut down 1,446 ft.

LOVE COUNTY

Batson & Sterrette's No. 1 Dillard, SE NE NW Sec. 25-6s-3 ..... Show 5 bbls. 1,585-96 ft.; T. D. 4,433 ft.; P. B. to 1,604 ft.; pumping; showing 5 bbls.

MARSHALL COUNTY

Taliaferro et al's No. 1 fee, NW SE SE NW Sec. 34-5s-5 ..... Rig.
McCrory et al's No. 1 Little, NW SW Sec. 30-7s-6 ..... Bailing 10 bbls. of oil 495-97 ft.; recemented csg.; pumped 110 bbls. 30 hrs.
D. H. Curry's No. 1 Ward, NE SE SW Sec. 15-5s-6 ..... Shut down 2,310 ft.

McCURTAIN COUNTY

The Oil Journal's No. 1 Parks, C NE NW Sec. 9-6s-23 .. Shut down 50 ft.
Stewart's No. 1 Patterson, C SE SE Sec. 7-6s-24 ..... Drlg. 458 ft.

STEPHENS COUNTY

Brown's No. 1 Hightower, SW SE NE Sec. 15-3s-5w .... Drlg. 405 ft.

PUSHMATAHA COUNTY

George's No. 1 Lane, NW SE Sec. 32-3s-15 ..... Drlg. 840 ft.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 36)

OSAGE COUNTY

Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15 .... Shut down 1,050 ft.
Fields' No. 1 Usker, SE cor., Sec. 35-16-17..... Shut down 400 ft.

RAWLINS COUNTY

J. G. Durham et al's No. 1 Weaver, SE cor.. Sec. 3-2-35w.. Drlg. 3,337 ft.

RICE COUNTY

Solar Oil Co.'s No. 1 Zink, SE NW, Sec. 3-19-10w..... Drlg. 1,390 ft.
Detrick & Langston's No. 1 Purcell, NW cor. Sec. 33-19-9w ..... Drlg. 1,695 ft.
McFadden and Shell's No. 1 Jennings, SW NE NW, Sec. 29-18-6w ..... T. D. 1,450 ft.; plugging back to 1,130 ft.
Cress et al's No. 1 Sharp, SE NE, Sec. 13-20-10w..... Show oil 3,107-15 ft.; Silicious 3,330-36 ft.; estimated 1,500 bbls.; shut in.
Allison-Fitzwilliams' No. 1 Blake, NE NW, Sec. 9-18-10w. Drlg. 375 ft.

ROOKS COUNTY

Empire Oil & Ref. Co.'s No. 1 Halsman, SW NE SE, Sec. 17-7-20w ..... Silicious lime 3,636-88 ft.; water; abnd.

RUSH COUNTY

Dewey & Mitchell's No. 1 Greenawalt, C SW, Sec. 17-19-16w ..... Underreaming 3,445 ft.

RUSSELL COUNTY

Hall et al's No. 1 Mills, SE SW SE, Sec. 30-14-13w..... Show oil 2,902-08 ft.; T. D. 3,090 ft.; comp. for 100 bbls.
Agate Oil & Gas Co.'s No. 1 Rochfellow, SE cor., Sec. 6-13-12w ..... Shut down 3,374 ft.
Gilbreath et al's No. 1 Bratton, C NE, Sec. 33-11-13w.... Show oil 3,090-94 ft.; drlg. 3,415 ft.

SEDGWICK COUNTY

Buck et al's No. 1 McNananan, NE NW NW, Sec. 2-29-1. Cleaning out 2,440 ft.

SALINE COUNTY

Stanolind Oil & Gas Co.'s No. 1 Martin Com., NE SE SE, Sec. 3-16-3w ..... Water 3,500-04 ft.; T. D. 3,534 ft.; abnd.
Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW, Sec. 20-13-4w ..... Shut down 2,700 ft.

SHERIDAN COUNTY

Flo et al's No. 1 Shoemaker, SE SW SW, Sec. 27-7-26w.. Drlg. 2,445 ft.

STAFFORD COUNTY

Rosenthal, Stanolind and Amerada's No. 1 Gray, C NE, Sec. 11-24-13w ..... Underreaming; T. D. 2,750 ft.

STEVENS COUNTY

Argus Prod.'s No. 2 Christopher, C NE, Sec. 10-33-39w... Drlg. 5,430 ft.

SUMNER COUNTY

Spencer et al's No. 1 Porter, NE SW, Sec. 12-33-4w..... Shut down 50 ft.
Otstot et al's No. 2 Marlow, C SE NW SE, Sec. 22-33-3w.. Drlg. 3,135 ft.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE, Sec. 16-3-3..... Shut down 1,720 ft.

CANADIAN FIELDS

(Continued from Page 44)

subsided almost entirely and considerable crude oil was forced through the mud. The showing was the strongest yet encountered. Casing was cemented at this point, and the test will be deepened into the sand.

On the Spring Coulee structure, Alberta Pacific's No. 1, LSD 12, Section 15-4-23w4, has been cemented, and the oil shows previously encountered in the upper horizons will be tested.

Red Coulee Field

On the Alberta end of the international Red Coulee structure, it is reported that Alberta Pacific Consolidated's No. 1 Devonshire, LSD 3-4, Section 10-1-16w4, is being abandoned. This test was last year drilled by Devonshire Oils, Ltd., to around 2,000 feet, and after being shut down for some months was taken over recently by Alberta Pacific Consolidated Oils, Ltd. Location was some distance northeast of the Vanalta producing group.

Pincher Creek District

In the Pincher Creek district, southwestern Alberta, Alberta Pacific Consolidated's No. 2 Weymarn, LSD 5, Section 7-6-1w5, is reported to have drilled through the lime at 2,945 feet, and is now making hole below 2,990 feet, apparently in the Kootenay formation. The test got the Madison at 2,745 feet, but no gas was encountered at the contact or in the lime horizon, though small gas flows were in the formations above the lime. Under normal structural conditions, the Kootenay formation overlies the Madison.

In the Twin Butte area, Alberta Gas & Fuel Co.'s No. 1 Yarrow, LSD 16, Section 34-3-30w4, has finished pulling casing after discontinuing the test at 4,810 feet. The decision to stop work was reached after drilling more than 1,000 feet through an overthrust. It is reported that with completion of this, the company's fourth dry hole on the sharp-dip foothills structures of the Pincher Creek area, the company is definitely discontinuing all work. The office at Pincher Creek is being closed and the crews are returning to Oklahoma, but for the present the drilling equipment is being left in the field. Drilling operations have been carried on almost continuously in this area for four years, with an estimated outlay of $2,000,000.

Drilling in the Foothills

On the Monarch structure west of Olds, Majestic-Cartier's No. 1, LSD 3, Section 36-31-7w5, is reported drilling below 400 feet with their big pipe and efforts will be made to reach 1,000 feet with the 18⅝-inch string. Comparison with the log of the Monarch Oil Co. deep test, drilled in 1914, shows that Majestic-Cartier's No. 1 is about 1,400 feet structurally higher, and the later test has landed its 21½-inch casing at the same depth in formation as Monarch's No. 1 set the 6-inch.

On the Aldersyde structure, south of Calgary, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is drilling below 4,860 feet. A fairly large gas show was encountered at 4,740 feet, and additional gas has been met as the hole was deepened.

On the Moose Mountain structure, Graystone Consolidated Petroleums' No. 1, LSD 9, Section 34-23-5w5, is still drilling through bridging which formed after a shot. The shot was set off in a light crude sand encountered by the old Signal Hill Oil Co. If satisfactory production results from the shot, the test may be finished at this depth, around 4,165 feet; if not, a second shot may be tried before drilling deeper. Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is reported finishing a fishing job at 3,184 feet.

Repairing Big Gasser

On the Rogers-Imperial structure east of Coutts, Range Oil & Gas Co.'s No. 1, LSD 9, Section 21-9-11w4, is refitting in preparation for winter gas deliveries. The 4-inch casing is being put in shape and a slight water seepage plugged off. Gas was delivered to the Montana Cities Gas Co. through the winter. The well had an initial open flow production estimated as high as 65,000,000 feet a day.

In the Carmangay district, a structure test by Imperial Oil, Ltd., on the Jack Akitt farm has been finished, and a second test started on the Mrs. John Norem farm.

Ribstone Field

In the Ribstone Field, eastern Alberta, Algonquin Petroleums' No. 2, LSD 5, Section 16-45-1w4, is drilling below 200 feet. Algonquin Petroleums, Ltd., was incorporated recently with office at Calgary. In addition to its Ribstone acreage it holds leases in the Pincher Creek, Blood Reserve and other potential Alberta oil areas. Officers are: President, L. C. West; vice president, R. J. Hutchings; secretary-treasurer, Sydney A. Annand; directors, I. Isherwood, Gerald V. White. The Ribstone test is being drilled in co-operation with Commonwealth Petroleums, Ltd., of Calgary.

Rayco Oils' No. 1, LSD 3, Section 4-47-1w4, is drilling in the lime below 2,400 feet after failing to get commercial production in the upper sands. Heavy crude for fuel oil purposes is being delivered regularly to the Canadian Pacific Railway from the four Ribstone producers.

Wainwright Field

In the Wainwright Field, east central Alberta, Montreal-Alberta Petroleums' No. 1, LSD 2, Section 15-45-7w4, is drilling with two shifts. Atkins Petroleums, Ltd., and Strathmore Oils, Ltd., are reported to have amalgamated and will probably drill Atkins' No. 1, for which a derrick was erected some time ago on the George Boyd farm in LSD 9, Section 18-45-6w4.

Northern Alberta Test

In the Mirror Landing district on Athabaska River, northern Alberta, Crudome Oil Co.'s No. 1 is preparing to start work. Rig building and drilling crews headed by Roy Berray of Wainwright and Harry Gordon of Turner Valley have dismantled the Peninsular Petroleums' derrick in the Wainwright Field, and are moving the timbers and the Peninsular drilling equipment to the new location. J. H. McCorkindale, managing director, is in charge. The test, the only one now active in northern Alberta, is being financed by Toronto interests. Definite location has not yet been announced, but it will probably be in Township 71-1w5.

Saskatchewan Oil Show

In eastern Saskatchewan, Simpson Oil Co.'s No. 1, Section 9-29-25w2, recently encountered a shot of high-grade paraffin base crude around 3,000 feet. The well was inspected by William Calder Alberta government geologist, for the Saskatchewan government; the showing proved noncommercial, but Mr. Calder advised drilling deeper.

British Columbia Tests

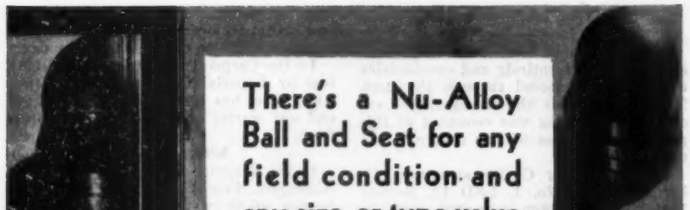
In the Cariboo district, British Columbia, Cariboo Oil Co.'s No. 1, near Australian, 17 miles from Quesnel, recently reported a show of 31.5° crude at 835 feet. Preparations are being made for a shot.

Manitoba Test

In the Manitou district, southwestern Manitoba, Commonwealth Petroleums' No. 2, LSD 2, Section 26-2-9WPM, is drilling below 450 feet, about 200 feet above the horizon where Commonwealth's No. 1 got its first gas show.

Drilling in Quebec

In the St. Lawrence Valley, between Quebec and Montreal, drilling is at last actively under way, after extensive leasing by various interests which are reported to have tied up close to 1,000,000 acres. Near St. Hyacinthe, Hope Engineering Co.'s No. 1 is reported drilling at 1,000 feet after encountering a pocket of gas at 180 feet, and is planning to carry the test to 3,500 feet if necessary. Two other companies are reported arranging to start tests this summer. Alberta Gas & Fuel Co., which recently discontinued operations in Alberta, holds upward of 25,000 acres, and is reported planning a test. Dr. W. A. Parks has completed a geological investigation of the area for the Quebec Bureau of Mines,


There's a Nu-Alloy Ball and Seat for any field condition and any size or type valve
Warehouse Stocks: Houston, San Antonio and Wichita Falls, Tex.; Tulsa, Okla.; El Dorado, Ark.; Coffeyville, Kansas.
Within 2 hours after your order is taken your Nu-Alloy Balls and Seats will be on the way! Have you our catalog? Write for it.
Petroleum Equipment Co.
of Texas, Incorporated
JON R. LONG, Manager
Plant and Office: Fort Worth, Texas

Ross-Meehan Foundries

Manufacturers—

RIVER CLAMPS a Specialty

Williamson Multispeed Winch for Oil Fields
Williamson Drum Units
Electric Steel Castings, Electrically Annealed
"Certified" Malleable Iron Castings
"Meehanite Metal" Castings
Gray Iron Castings
Special Analyses Castings for—
Oil Producers and Refiners

Chattanooga, Tennessee, U.S.A.

GAUGE POLES

Any Length — For Oil Measurements

"MARSH-JOINT"

For sale by oil country supply houses or furnished promptly by the factory at Titusville, Pa.

Correspondence Solicited

MARSH GAUGE POLE COMPANY
TITUSVILLE, PA.

PICTURED is an "American" No. 4-A Oil Well Pumping Unit, one of the most popular of the complete line of oil well pumping units that are made by The American Well Works. All gears are enclosed and run in a bath of oil. This unit is used throughout the oil fields of the world. Catalogs and engineering data upon request.

THE AMERICAN WELL WORKS
General Offices AURORA, ILLINOIS and Tulsa

C. S. CARTER, Sales Representative
711 Thompson Bldg., Tulsa, Okla.

D. V. MANN, Sales Representative
1311 Kirby Bldg., Dallas, Texas

and if his report is favorable a number of leaseholding companies are prepared to start work.

Ontario Operations

In Lambton County, Sarnia Oil & Gas Co., headed by Leo Willson, which recently completed a gasser on the A. W. Parks property east of Oil Springs, is reported preparing to drill a second test. Its No. 1 test had a reported initial open flow of 1,000,000 feet from the Oil Springs gas sand around 1,900 feet; but the company is planning to drill deeper with its No. 2 test in this area. At the time of the Oil Springs gas boom in 1914 two large producers were drilled close to Oil Springs, though the wells failed to hold up under continued production. Sarnia Oil & Gas Co. has about 16 shallow producers in Sarnia Township and adjacent areas and is preparing to deliver the production to Southern Ontario Gas Co. which recently secured a franchise for Sarnia Township. The Sarnia Oil & Gas Co. has a contract for up to 20,000,000 feet a day at 25 cents per 1,000 feet.

Ontario Drilling

In Mosa Township, Middlesex County, Ontario, Southern Ontario Gas Co.'s No. 8, SE, Lot 14, Concession 3, is reported at 120,000 feet a day.

In Dawn Township, Lambton County, Union Natural Gas Co.'s No. 60 is rigging up in SW cor. NE, Lot 25, Concession 1. In the same field, Union's No. 49 has been deepened to 1,794 feet, increasing the production to 7,500,000 feet.

In Kent County, Union Natural Gas Co.'s No. 17, in the D'Clute Field, Raleigh Township, has been deepened from 1,441 feet, where it had around 500,000 feet, to 1,592 feet, increasing the production by about 150,000 feet. Near Fletcher, on the Raleigh-Tilbury east line, a test, started as a shallow drilling venture by Joe Hussey, has been carried to 1,390 feet, getting a small show of gas and oil. Near the Harwich-Howard line, Frank H. Stover is drilling around 200 feet on a wildcat at McKay's Corners.

In Haldimand County, Union Natural Gas Co.'s No. 202, SE, Lot 9, Concession 5, Rainham Township, finished in the red Medina with about 109,000 feet of gas. Union's No. 203, same quarter, got 38,000 feet.

In Walpole Township, Haldimand County, Union's No. 194, Lot 22, Concession 7, got 5,000 feet of gas in the red Medina, which a shot increased to only 10,000 feet. It has been abandoned. Union's No. 200, SE, Lot 21, Concession 2, Walpole, finished with about 15,000 feet. Union's No. 204, SW, Lot 23, Concession 7, Walpole, and Union's No. 205, NE, Lot 13, Concession 4, are drilling.

In Norfolk County, Union Natural Gas Co.'s No. 201, NW, Lot 19, Concession 5, Woodhouse Township, got about 46,000 feet, which a shot increased to 80,000 feet. Union's No. 206, north one-third, Lot 19, Concession 5, Woodhouse, is drilling. This will complete the Union Natural Gas Co.'s immediate drilling program in the Haldimand-Norfolk area.

In Norfolk Township, near Tillsonburg, Acme Gas & Oil Co.'s No. 4, on the Frank Lymburner farm, is reported to have shown an initial production of 540,000 feet.

Shallow Gas Show

On the Alex Ferguson farm west of Sundre, Alberta, and about 36 miles west of Olds, a shallow test for water recently encountered a fairly strong gas flow at 37 feet. Location is in Township 32-7w5, about 5 miles north and 1 mile west of the Cartier-Majestic deep test.

SOUTHWEST TEXAS FIELDS

(Continued from Page 40)

ran wild has been mudded in and is waiting orders at 2,470 feet.

In western Nueces County, about 8 miles south of the Agua Dulce Field, the Southern Gas Co. is starting a wildcat test on a block of acreage, the test being on the Charles E. Stratton farm.

Laredo District

In the southern part of Starr County where Los Olmos Oil & Gas Co. on the Kelsey-Bass land north of Rio Grande City got some shallow gas at around 350 feet, No. 4 has been completed standing within 70 feet of the top in oil and total depth about 500 feet. The company is starting another test 300 feet from No. 4. The Sacramento Oil & Gas Co.'s No. 1 Seabury which has been standing for some time got under headway and has made several hundred feet of hole.

Zapata County is still leading the activity of the Laredo district but is showing lessened activity and Duval County is coming a little to the front. The Texas Company in the Schoolfield-O'Byrne extension completed its No. 2 Bishop Duval Land Co. in sand at 2,380-90 feet for an estimated 200 to 300 bbls. per day. There are now seven oil wells and two gas wells in this extension and they are all good producers, this last completion being about the smallest.

J. W. O'Byrne resumed drilling his No. 1 Weil Brothers in Survey 568 several miles southwest of the Schoolfield-O'Byrne extension and Humble now has No. 50 Kohler in the Kohler gas field down to 6,473 feet and drilling.

A new test is being started in the Cole Field area a little west of the town of Bruni. F. P. Zoch and Trinity Drillers are starting No. 1 Cuellar, 1,200 feet from the northwest and southwest lines of Share 2. Somewhat east of this O. W. Killam and other operators have drilled a number of gas wells to around 2,350 feet and the Cole oil field in Webb County is 3 miles due north and producing at around 2,350 feet.

Balcones Fault Zone

V. G. Schimmel's second test in the southwest corner of Bastrop County is estimated as a 100-bbl. well in the Serpentine. This is a new Serpentine plug a couple of miles southwest of the Yoast Pool in southwestern Bastrop County. His first well, No. 1 Williams, was about an 8-bbl. well but No. 1 Ferguson, the second test, was tried out last Friday and pumped off 65 bbls. in a little while without lowering it. Top of the pay is at 1,476 feet and total depth is 1,684 feet. The location has been made for No. 2 Ferguson which is 632 feet west and 17° north of No. 1.

In Caldwell County, Ogden's No. 1 Alexander which had a little showing of oil in the Edwards lime is plugging back. It ran into water and failed to make a well in the Edwards. It will test out a showing in the Austin chalk. Mills' No. 1 McMahon has made a little more hole and is down 2,495 feet. Both of these tests are in the Dale area of eastern Caldwell County. M. O. Rayor, whose No. 1 Dunlop in western Caldwell County between the Luling Field and the town of Luling had a showing of oil in the Edwards, is still working with the showing. It is plugging back to shut out some water but does not look like much of a well.

Still following the Balcones fault zone east of San Antonio, W. J. Walton's No. 1 Zoboroski, 6 miles southeast of Sequin in Guadalupe County, had a better showing of gas at 940-50 feet than first reported. It was so strong that the mud had to be weighted to keep it from blowing out. It has set casing at 2,125 feet to shut off the gas and at that depth is in the hard Taylor marl and will drill to the Edwards.

West of San Antonio in the Balcones fault zone, there are several tests in Medina County but have merely made additional hole. Tegler's No. 6-A Nixon has set casing at 883 feet in the southern part of the Ina Field and total depth of wells in the field is at about 1,000 feet.

More progress has been made in the territory north of the Balcones fault the past week than in a long time. Evans & Gant who drilled No. 1 Love in southwestern Kerr County and brought in a small well at 3,391 feet, attracting the first attention to that country, have started pulling the rods in the test and will deepen it to the horizon where No. 1 J. M. Auld, 5 miles northwest in Real County, got a 70-foot sand at around 4,000 feet, and No. 1 A. D. Auld, 4 miles southwest, has about 200 feet with total depth of 4,008 feet. They are also

starting drilling on their No. 2 Love, a mile south of the No. 1.

No. 1 A. D. Auld was shut down at 4,008 feet waiting for orders but is starting to drill again and will continue on.

A few miles northeast of No. 1 Love the same operators are down 3,240 feet in their No. 1 Seiker-Mears and have set 6⅝-inch casing. This is close to the sand that made a small well in No. 1 Love and the next few days' drilling will be of interest.

Miscellaneous

In western Bexar County, Moore-Jaurer's No. 1 Ellison, which has been shut down for months and was reported abandoned at 2,170 feet, has started to pull the casing and has removed 30 joints and is working on six more. This test is already below the Edwards lime.

Ingersoll and others, in western Bexar County north of the Somerset Field, have made four formation tests down to about 500 feet just east of Von Ormy and from the formations believe they have a high and will later make a deep test.

LA.-ARK. FIELDS

(Continued from Page 38)

State Refining Co., operators of a refinery and producing leases in this field, a 90-day suspension of activities, pending the establishment of better crude prices.

Daily Average Runs

There was a sharp decline in daily average production, all of the fields registering a net decrease of 1,925 bbls., due to the North Louisiana fields losing 1,450 bbls. with Cotton Valley heading the list with a daily loss of 700 bbls. This is due to several of the companies withdrawing from a few of the fields. The daily average runs for the several pools were:

NORTH LOUISIANA

Caddo, light	7,050
Caddo, heavy	2,745
Homer	3,110
Haynesville	5,540
DeSoto and Red River	2,600
Elm Grove	465
Bellevue	280
Cotton Valley	900
Uranis	4,150
Pleasant Hill	390
Sarepta-Carterville	1,210
Zwolle	7,020
Holly	490
Total North Louisiana	35,950
Total previous week	37,400
Decrease	1,450

ARKANSAS

El Dorado	3,540
Smackover, light	3,920
Smackover, heavy	30,110
Stephens	790
Nevada	1,200
Lisbon	700
Champagnolle	2,370
Urbana	1,740
Total Arkansas	44,870
Total previous week	45,345
Decrease	475
Total both states	80,820
Total previous week	82,745
Decrease	1,925

KANSAS FIELDS

(Continued from Page 36)

Pool, is a new location. The Phillips Petroleum Co. has developed several producing wells on the north half of the northeast quarter and is now attempting the development of the south half. The test is a north offset to the Harwood and Winter well which is producing from the Bartlesville sand, making 275 bbls. on its initial production test.

Sedgwick County

Shell Petroleum Corp.'s No. 7 Fisher, NW cor. SE, Section 15-26-2, in the Greenwich Pool, in eastern Sedgwick County, swabbed 215 bbls. of oil in six hours from the Viola at 3,194-3,200 feet. The north offset recently completed by the same company made 360 bbls. of oil the first 14 hours. The well was No. 3 Lygrisse, SW cor. NE, Section 15-26-2. The two new wells have increased the daily production in the area to approximately 3,800 bbls. a day from 33 wells some producing from the chat and others from the Viola. The Shell Petroleum Corp. has 26 producing wells in the pool and 7 other wells belong to other companies.

Butler County

Magnolia Petroleum Co.'s No. 66 Koogler, NW cor. SW SW, Section 21-26-5, has been abandoned at 2,690 feet.

Ellsworth County

Keys Brothers and others made location for No. 1 Gregory, SW cor., Section 23-16-9w.

McPherson County

Smith and others staked location for No. 1 Hamilton, NW cor. SW, Section 28-19-1w. Sinclair Oil & Gas Co.'s No. 2 McAurdy, SW cor. SE SE, Section 33-20-3w, is drilling deeper at 3,329 feet.

Marion County

General Utilities Co.'s No. 1 Alexander, C NW NE, Section 22-17-7, has been completed for 200,000 feet of gas in sand 520-42 feet.

Rice County

McFadden and Shell Petroleum Corp.'s No. 2 Jennings, CSL NW NW, Section 29-18-6w, is a machine moving in. No. 1 Jennings, SW cor. NE NW, Section 29-18-6w, has been completed for 33,600 feet of gas in sand 1,128-48 feet, total depth 1,450 feet.

Sedgwick County

Schwartz and others' No. 1 Hull, NE cor. NW, Section 19-27-2, has drilled to 1,373 feet and shut down. Shell Petroleum Corp.'s No. 7 Fisher, NW cor. SE, Section 15-26-2, has been completed for 500 bbls. in Viola lime 3,194-3,200 feet. Derby Oil Co.'s No. 5 Eastborough, NE cor. SW NE, Section 19-27-2, has been completed for 165 bbls. in chat 2,952-71 feet.

Stevens County

Texas Interstate Pipe Line Co.'s No. 1 Crane, C NW, Section 15-33-38w, has been completed for 7,044,000 feet of gas in sand 2,535-2,779 feet.

OIL INDUSTRY LOSES CONSTRUCTIVE LEADER

(Continued from Page 33)

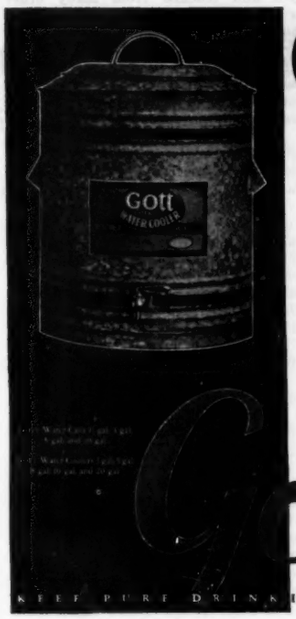
worker. He was at his desk from one to two hours before the employes began their daily work and often was at work hours after the last employe had departed. In his hours of relaxation he was a great and omnivorous reader and kept in the foreground on national and world events. He entertained his friends at his beautiful home where he extended a generous and delightful hospitality.

If Henry McGraw's chief characteristics were sought, they would be found to have been loyalty and charity. To his company he was devoted to the last degree of heart and mind. As an executive he demanded the same loyalty of those under him, and he got it. No executive in Oklahoma was better liked and more highly respected by the men under him than Henry McGraw. His influence was felt throughout the organization. He kept in touch with the most remote man and the most remote field operation of the far-flung organization.

While a severe task master, Henry McGraw was the best friend his employes had, and the consciousness of this made them give him their best work, without stint. No Mid-Continent company has a more loyal set of men than the Gypsy Oil Co. and the Gulf Pipe Line Co. Loyalty and service, cardinal principles of the general manager, were diffused through the organization.

Henry McGraw's charity was felt by many. In an unobtrusive way he is said to have given away what would be regarded as a comfortable fortune. Oil men in hard luck, boys seeking an education, poor families, worthy public causes, felt the influence of this quiet, generous friend. He never spoke of it, nor would he discuss this phase of his life's work. He felt, and would have bluntly said, that it was nobody's business but his own.

The oil industry has lost a constructive leader and society has lost a great hearted man in the death of Henry McGraw.



Gott Water Cans & Coolers

When you have a GOTT Water Cooler handy, you will always be assured of a fresh supply of pure drinking water kept delightfully cool. *Order one from your supply store . . . now!*

Gotkool

H. P. GOTT MFG. CO. • Winfield, Kansas

KEEP PURE DRINKING WATER ALWAYS HANDY

TANK CARS

765—4,000 to 10,000 gallon capacity cars, some with heater coils

13—5,000 gallon three-compartment cars, with heater coils

14—8,000 gallon three-compartment cars, without heater coils

3—7,000 gallon acid (sulphuric) cars

Cars are now in transportation service and in running repair. For full particulars, regarding individual cars or lots of cars, please communicate with:

INDIAN REFINING COMPANY
Superintendent Railway Equipment,
135 East 42nd Street, New York, N. Y.

National Airoil Burners

NATIONAL BURNER

Oil Burners and Gas Burners for every industrial purpose: Steam atomizing Burners, Motor-driven Rotary Burners, Low Pressure Air Burners, Gas Burners, Combination Gas and Oil Burners, Fuel Oil Pump Sets, Fuel Oil Strainers. Engineering advice, design and supervision of complete oil or gas burning systems for every industrial purpose.
NATIONAL AIROIL BURNER COMPANY
Oil Burners, Gas Burners and Furnace Equipment
Offices and Salesrooms: 1327 Girard Ave.
Factory: S.W. Cor. 9th & Thompson Sts., Philadelphia

IDECO Oil Well Drilling and Pumping Equipment
IDECO Standard Steel Buildings
STACEY Dry, Pressure and Telescopic Gasholders
STACEY Tanks, Stacks, Purifiers, Scrubbers
ROOTS Blowers, Pumps, Compressors
CONNERSVILLE Blowers, Pumps, Meters
WILBRAHAM Boosters, Exhausters, Blowers
HAYTON Centrifugal Pumps and Blowers
Engineers Manufacturers
INTERNATIONAL-STACEY CORP.
COLUMBUS, OHIO—869 Michigan Avenue
Chicago—New York—San Francisco—Los Angeles—Houston—Fort Worth—Tulsa—Buenos Aires

EAST TEXAS OIL ALONG THE OLD SHORE LINE

(Continued from Page 15)

part of this great structure has been a prolific oil and gas producer. There has been a constant effort to find new pools and extensions of old ones. In northeast Texas there have been more than 100 holes drilled in search of new pools. Nearly all were dry. But the wildcatters' constant hope led to a continuation of the search. In the area of the new field there were no surface indications to recommend the location. But this chance led to the discovery of the greatest pool of all; it is more an accident than careful scientific deduction.

There are 100,000 productive acres. In the early stages of the development it was expected there would be dry areas within the field, but now it seems probable that it is one immense pool and that there is not a dry location in the entire field. The first 1,000 wells have been completed. These have shown that there are 10,000 locations of 10 acres each. Surely more than 10,000 producing wells will be drilled. Wells are now completed at the rate of more than 10 per day. All conditions favor quick drilling. Material can be trucked to most locations; water is plentiful in creeks and shallow wells; there are gas lines in the field and fuel oil is plentiful at small refineries in the field. There is an oversupply of labor.

Drilling

The plan of drilling is to rig up and spud to a depth of 150 to 200 feet and set surface casing. After the surface casing has set the well is drilled to the top of the sand without casing, and the sand is cored. If the sand is saturated the string of 6⅝-inch casing is set and the well drilled in; a gas separator is installed and tubing is run in the well and after connections to tanks are installed the well is washed in. Generally there is enough gas to flow the well freely.

The rotary method of drilling is used exclusively. There are all types of rotaries from the light ones with a single boiler to the very heavy ones with three high-pressure boilers. Great quantities of drilling equipment have been shipped and trucked from many other fields which are less active. Drilling time is short. Three months ago two weeks was required for the drilling; now the time from spudding to drilling the sand is less than 10 days, and there is an unconfirmed report that one well cored the sand in two days and five hours, after it spudded.

There is no regular system of locations because the farms in Texas are in irregular shapes. The titles come down from old Spanish grants which have been cut up as the buyers desired. There are many small and triangular pieces which require more than the usual number of wells to protect the lines. There is much unnecessary drilling and hasty draining of the sands. Another feature which is hastening the drainage of the sand and causing large initial production is the high temperature of the oil. It is stated that the bottom hole temperature of the Magnolia Petroleum Co.'s No. 1 Florey, the first well on the west edge of the Kilgore Field to make salt water, was between 155 and 162° F. High temperature is common to all wells in the area, which may explain in part the reason for high initial flush production, because the temperature tends to increase the fluidity of the oil and cause it to move through the sands more freely.

Kind of Oil

Laboratory distillation of two samples of typical East Texas crudes taken from wells in the Longview-Joiner area is shown below. These were fractionated at atmospheric pressure in a very efficient tower. Plant yields may be expected to be slightly lower in gasoline. An analysis of the oil is as follows:

Product—	Per cent of crude No. 1	No. 2
Gasoline (56-57 Gr. U.S.M.)	40.7	39.8
Kerosene (40-41 Gr.)	1.1	1.5
Gas oil	22.2	22.3
Lubricating distillate	5.6	5.6
Residuum (19-20 Gr.)	27.8	27.9
Fixed gases	1.0	1.0
Loss	1.6	1.9

The wax content is estimated at 2 to 2.5 per cent.

Tests on Crude Sample		
Gravity	39.1	38.7
Sulphur	.25	.27
Pourpoint	45	....

Total Oil in the Field

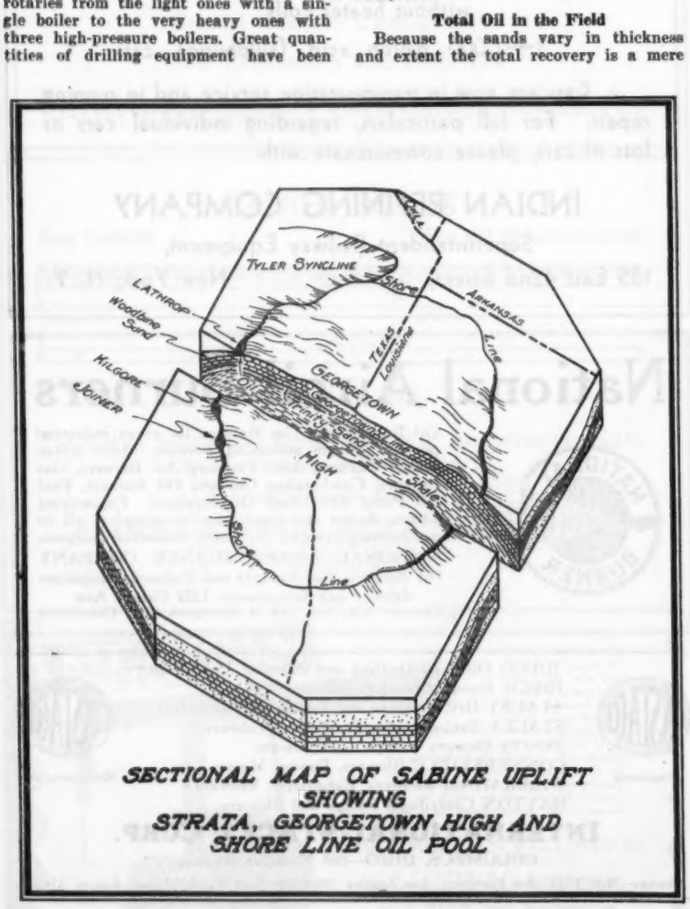
Because the sands vary in thickness and extent the total recovery is a mere guess. Some are placing the recovery as low as 7,500 bbls. per acre whereas others go as high as 25,000. The following table is inserted to show the recovery for the various amounts per acre:

Number acres productive	Recovery per acre	Total recovery
100,000	5,000	500,000,000
	10,000	1,000,000,000
	15,000	1,500,000,000
	20,000	2,000,000,000
	25,000	2,500,000,000

It seems to the writer that the estimate of 15,000 bbls. per acre is conservative. If so the field will produce 1,500,000,000 bbls. It may go to 2,000,000,000. Apparently this field alone can supply the needs of the United States for two years.

Marketing

The marketing is in a chaotic condition. Various trunk pipe lines have feeders into the field; there are many car loading racks and some small refining plants have been built. Every possible attempt is made to begin orderly production but with over 300,000 bbls. per day thrown on an already overloaded market, systematic handling is difficult.



SECTIONAL MAP OF SABINE UPLIFT SHOWING STRATA, GEORGETOWN HIGH AND SHORE LINE OIL POOL

FIELD METHODS OF TREATING CRUDE OIL

(Continued from Page 48)

if a small amount of the proper chemical should be added to help keep the paraffin particles as nonadhering as possible. In this connection it is interesting to note that such of our wells as are now producing salt water do not give us any trouble.

At the present time only a few of the wells in the Waggoner pasture are causing much trouble with waxy deposits and the few troublesome ones are those which still produce considerable gas and oil with no water present.

Another lease which has given us considerable trouble is our Burnett lease, south of Electra. This lease at present is producing something like 700 bbls. of salt water with 170 bbls. of oil, and about 20 inches of vacuum is being pulled at the casinghead. This lease has always produced more or less b.s. and we find it necessary to use some sort of treating methods practically the year around, and especially in the colder weather.

On this lease both chemical and heat are being used at the present time. The chemical is added to each stock tank bottom; the bottom plus chemical is then stirred up and allowed to settle, after which the tank is filled with fresh crude. The entire tank of oil is then circulated through a gas fired heater until thoroughly warm from top to bottom. This circulating from bottom to top gives the chemical a good chance to mix with the warm oil and finishes the process of treating.

The following data taken in this connection may be of interest:

A sample of fresh oil coming from the gun barrel to the stock tanks ground out 7 per cent b.s. and a trace of water when cold. This same sample, after being heated to 120° F., ground out 3 per cent water and 3 per cent b.s. The results of several such tests indicated that heat alone would not produce pipe line oil out of the Burnett crude. So certain information was collected on five separate tanks of oil treated with both chemical and heat:

Date: December 29, 1930, to January 5, 1931.

Lease: Burnett; 200-bbl. welded stock tanks (M-V).

Tank Empty: 7½ inches thick b.s.; no water.

Two quarts of chemical were used in treating each tank bottom. The tank bottom and chemical were then well stirred up.

Tank Bottom After Treating Settled to: 4¾ inches b.s. (thin); no water.

Showing that the use of chemicals reduced the b.s. content of the bottoms an average of 2¾ inches.

The Tank Was then Filled and the Following Data Taken: Gravity 38° Cor.; 4½ per cent b.s. content cold; 9 inches b.s.; no inches water.

The tank was then heated by the thermo siphon system through a homemade gas heater to 115½° F. and the following data taken: 14 hours required to heat a tank; 115½° temperature at finish; 5,170 feet of gas used; gravity, 40.3 degrees corrected; six-tenths per cent b.s. content of finished oil; 8 inches b.s.

Shrinkage 4 3/5 inches per tank (representing water plus b.s. drawn off during process at the heater).

Results of Process: Gravity increase 2.3 degrees; b.s. content reduced 3½ per cent; average loss per tank treated 4 3/5 inches as compared with their practice of dumping and burning the tank bottom before present system was put in operation.

Net Cost per Tank: Gas, 5,170 cubic feet at 20 cents, $1.034; chemical, one-half gallon at $2, $1.

Savings per Tank: Due to increase of gravity 180 bbls. at 4 cents, $7.20; reduced loss in cleaning bottoms, several inches.

But probably the most important item is the fact that we are producing pipe line oil where we have had plenty of trouble in the past.

On our Davis lease in southern Oklahoma we are producing a 33 gravity oil that contains about 3 per cent paraffin. This lease produces about 3 bbls. of water with each barrel of oil and has given us considerable trouble from emulsions. While lease gas was still plentiful we used both heat and chemicals in treating this oil. But now that it is necessary to buy gas, we have reduced our treating costs considerably by using a water solvent chemical which is working as well and is also the cheapest treating system that we have used.

A gallon of the chemical is mixed up in a barrel of warm water and injected into a couple of the wells which give the most trouble at the casing head. (Incidentally, these most troublesome wells make the most water.) On this lease about a gallon of chemical per day is used in the cold weather and about one-half of this amount is used in the warmer weather. The lease produces around 130 bbls. of oil per day now.

The oil and water production is carried to near the bottom of a first 500-bbl. tank which is used for a gun barrel, and is thereby given a chance to thoroughly mix with the chemical and be acted on by it. It then goes through another 500-bbl. tank which is used as a settling tank before it goes to the 250-bbl. stock tanks. This runs the treating cost on this lease to approximately 1 cent per barrel of oil produced for the year around.

Another of our leases where it is necessary to treat the oil in the cold weather is our Surber lease, south of Duncan, Okla. On this lease several barrels of water are produced with each barrel of oil and in the winter time it is necessary to use heat to get the oil to settle out in good shape. All the lead lines from the wells are connected into a common header. From the header all oil and water circulates through an old field boiler. A slow gas fire is kept going in the boiler so that the production enters the 500-bbl. settling tank at about 90° to 100° F. This warming process is generally all that is necessary to produce pipe line oil on this lease. This oil runs about 38 gravity.

START SALES CAMPAIGN

NEW YORK, June 19.—Cities Service Refining Co., with headquarters at Boston, is in the midst of a 60-day automotive products campaign designed to enlarge the company's customers' list. The drive was inaugurated at a two-day meeting of district managers, service station supervisors and salesmen at the Boston office and refinery, featured by the showing of an educational movie on the refining of crude. Each salesman in every retail district covered by the company has been assigned a quota of 35 bbls. of motor oils to customers who have not previously used Cities Service automotive products, prizes and bonuses to be awarded the men achieving the best sales records.

Better Tone In Chicago Market Area

Mounting Demand, California Price Changes and Progress Towards Proration in East Texas Were Factors

By Robert C. Conine
Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, June 22.—A better tone crept into the refined petroleum products markets in the Chicago district at the close of last week under the influence of mounting demand, the price increases in California, the better definition of the forces at work in East Texas, the favorable position of a bill which will put teeth in the Illinois gasoline tax collection law, and the agitation for a 15 per cent increase in freight rates on the part of the railroads.

Marketers Foresee Cracking Increase

The solution to the problem of superabundant fuel oil and gas oil stocks as seen by an increasing number of brokers and jobbers, as well as by some of the refiners, is a solution which will perform the additional service of disciplining certain crude oil producers, and this is to crack the fuel and gas oils and cut down the crude oil runs to stills. As one student of the markets said: "The splendid demand for motor fuel this season is causing a considerable number of refiners to run their plants at full capacity, but the fuel and gas oil markets are extremely dull and most of the output of these products must be placed in storage if it is not practically given away or run into earth pits.

"It is quite possible for the existing conditions to continue for awhile yet, but it is inevitable that a saturation point will be reached in respect to these heavier fractions and residues unless there is a miraculous revival of industrial activity and railroad and ship demand. Recently we shipped 16 cars of 18-22 gravity fuel oil to a manufacturer on his contract. We received a wire from this manufacturer while the material was en route in which he asked us to cut the consignment to the factory in half and dispose of the fuel oil surplus elsewhere charging losses in the transaction back to the manufacturer. When the fuel oil reached the buyer he had storage facilities left for the eight cars only and his loss was considerable when the extra eight cars had to be run into storage elsewhere. We are getting accustomed to this sort of thing, and the veriest tyro can see that some solution must be worked out soon.

"If cracking is a more expensive operation, it has the paramount advantage of providing a product which is salable and which has much better prospects than fuel oils and gas oils. In fact, the point may be reached at which only those refiners who can convert their residue and heavy distillates into gasoline will survive."

Special Q.D.A. and Chicago Market

The fact that Chicago gasoline retailers have a 1-cent advantage over other points in the territory on the Q.D.A. is pointed out by some marketers as the reason for the present keen competition among marketers in the matter of discounts to dealers. The Q.D.A. posted by Standard Oil Co. of Indiana in Chicago is 4 cents on Red Crown Ethyl, 3.5 cents on Red Crown(regular), and 2 cents on Stanolind Blue, off tank wagon price in quantities of 1,000 gallons or more per month.

One of the larger marketers is offering to independent service station operators who own their own trucks an additional 1-cent discount if the operator delivers his own gasoline, and also a half cent discount for rental, thus making the discounts 3.5 cents on the third grade, 5 cents on the regular and 5.5 cents on the Ethyl. Reports that discounts on the regular grade of gasoline of as much as 5.5 cents and 6 cents are unconfirmed.

Investigating Russian Gasoline Rumor

A rumor which found circulation in the offices of major interests as well as among the lesser companies has inspired a number of independent investigations. The rumor is to the effect that Russian gasoline has found its way into the trackage station outlets at Detroit. The report is that a consignment of 20,000 bbls. of gasoline was sold to a Detroit retailer by the Soviets at a price of 4.6 cents a gallon. The price is ridiculously low and would represent a netback to an Oklahoma refiner of 0.9 cent (nine-tenths of a cent). Wore still, the rumor has it that the Soviets have given the Detroit retailer an option on an additional 20,000 bbls. of gasoline at a price of 3.5 cents. To meet this the Oklahoma refiners would have to be satisfied with a profit of two-tenths of a cent less than nothing! Detroit is not an Oklahoma market, needless to say, but the comparison serves its purpose.

Where this report is considered as something more than an idle bit of gossip, it is pointed out that the Russian gasoline could be brought to Detroit by water at a substantial saving in freight charges, whereas the oversea transportation would carry out the Russian policy of converting natural resources into cash by every means available to the government.

Antibootleg Law Projected

A bill which has apparently made the senate and house hurdles in Illinois will, upon the affixing of the governor's signature, deal a severe blow to gasoline tax evasion artists. This is the Carlson Bill, No. 598, which provides that distributors of gasoline must furnish $5,000 bond and that brokers must register and make monthly returns. Garret Kinney, director of finance, says that the bill will eliminate the "will-'o-the-wisp" operators who have consistently avoided the payment of the gasoline taxes they have collected from motorists. According to Mr. Kinney, the enforcement of the proposed law will increase the State's revenue from the gasoline levy by $2,000,000 annually at least.

Chicago Post Office Award

Deep Rock Oil Corp. has been awarded the contract to supply the Chicago post office with gasoline for the third quarter. The contract calls for a delivery of approximately 300,000 gallons at a minimum price of 0.002 cent below the average ruling price at the time the orders are placed, and a maximum price of 3.25 cents a gallon. The post office pays an additional 2.5 cents a gallon for handling charges and transportation from the refinery.

Viewpoints on Freight Rates

An Associated Press dispatch from Washington last week caused a momentary flurry which died down upon investigation. The fact that the Interstate Commerce Commission had that day approved an application for a 15 per cent reduction in freight rates for refined petroleum products so that the railroads could meet pipe line and truck competition was carried in the news item without the additional information that "times have changed" since the application was filed and that the railroads are at present chiefly interested in increasing freight rates. The approval on the 15 per cent decrease in freight rates is merely of academic interest now and has been laid to rest in the files as the commission's supplementary report in Docket 17,000, Part A.

One of the larger refiners said that freight rates are the real reason why the majors continue to operate their several plants at considerably below their capacity instead of shutting down one or more of the refineries and running the remainder at nearer their maximum capacity. If the freight rates on refined products were lower, according to this refiner, there would be a decided advantage in running fewer refineries and shipping farther. However, this operator also pointed out that an increase in freight rates will tend to shut out competition from far removed points, so that refiners in any district will hold an almost unsurmountable advantage over "outsiders."

Possible Great Lakes Line Developments

Several marketers who have kept closely in touch with developments in the Great Lakes gasoline pipe line project, one of the terminals of which is expected to begin delivery of gasoline in Chicago in the early part of July, say that the marketing setup among the member owners of the line points to a possible increase in quantity of gasoline to be delivered in Chicago for Phillips Petroleum Co., which has greatly increased the number of its retail outlets in this district, through a trade of some of its gasoline pipe line facilities with a Great Lakes pipe line member who holds a strong position in Kansas City or St. Louis.

Third-Grade Gasoline Situation

It is now more or less generally admitted among the major and lesser interests in this district that the third grade of gasoline has hurt the gallonage of the regular grade. The regular grade is now in a better position than it was shortly after the introduction of Stanolind Blue, however, and most of the second grade losses are reported at those points where the third grade is just getting under way. When the blue motor fuel at cut-rate prices is no longer a novelty in any part of the territory it is expected that the gallonage on the regular grade will show little if any ill effects from the third-grade competition.

Uncertainty is the most noticeable feature of the service station gasoline markets. For some time it has been in the air that one of the majors is to make a drastic reduction in the price of its third grade of gasoline. Saturday found two conflicting versions, one was to the effect that the large marketer was preparing to cut the price from 8 cents to 6 cents, exclusive of 3-cent gasoline tax, and the other was to the effect that an attempt would be made to follow the lead of the California marketers and that the price of this gasoline would go up. Probably the correct view is that of the less sanguine marketers who feel that the major will leave "well enough" alone.

Standard Oil Co. of Indiana reduced its service station postings on the third grade 0.5 cent to 9.5 cents, and the tank wagon market 1.6 cents to 9.5 cents at Detroit. This gasoline is now selling for 5.3 cents less than the regular grade in that city. At Saginaw the service station and tank wagon prices were cut 0.4 cent to 12.5 cents.

In oil circles here it is believed unlikely that price wars such as have been raging at other points in the country such as Detroit, St. Louis, Wichita, St. Joseph, Los Angeles, etc., will take place in the Chicago district. The reason for this belief is the fact that the cut-price operators are comparatively weak here. The part now being played by trackage operators offering 7-cent gasoline is held to be practically insignificant. The only thing that will change the situation will be the posting of a cut in price by one of the larger distributors.

After this week the real motoring season will arrive. This week the outings will be somewhat curtailed by the attraction of graduation exercises and the closely related preparations for the carefree days. After this, however, the prospects for the warmest summer since 1913 have received some confirmation and gasoline consumption in the district is confidently expected to be record breaking. In spite of the general business depression the sellers of gasoline have had no cause for complaint this year, because except for the ill-timed rains which have almost grown synonymous with week-ends this has been the mildest winter and spring Chicago has known in 18 years. The mercury has already shown a disposition for creeping to the "nineties" at the least provocation, and when it's 90° F. in Chicago it is advisable to wander about in the lake or seek the cooling breezes via automobile.

Tank Car Markets

While a number of important factors, as already mentioned, are giving a better tone to the gasoline markets in the Chicago district, the policy which has been adopted by jobbers of buying only enough material for their immediate needs has made anything like a definite price structure impossible. There is not too much willingness on the part of the refiner, on the other hand, to enter into a price agreement covering any length of time. The two factors are thus at a stalemate until something happens that will bring confidence that a price schedule can be maintained.

Most of the gasoline appears to be moving at a price of 2⅛ to 2¼ cents. Buyers are shopping about assiduously for lower prices and the quantity of gasoline sold at 2½ cents is said to be practically negligible, as is the quantity selling at 2 cents. Reports that a small amount of gasoline, perhaps of 450 endpoint, is selling below 2 cents refuse to be downed.

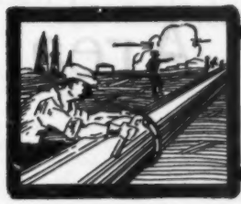
Withdrawals From Spot Market

At least two major operators in the Chicago district have withdrawn from the gasoline spot markets. These sellers continue to take care of a few favored accounts on their open market requirements, but they report that they are tearing up applications for bids, even on some of the important orders. The adoption of the third-grade gasoline marketing policy, according to these refiners, has removed the need for their participating in the open market. Their third-grade gasoline outlets are quite as satisfactory a means of disposing of motor fuel as the spot market buyers under the present conditions in which price shading is the predominant feature.

Natural Gasoline and Naphthas

Natural gasolines and naphthas have not lived up to their early promise, although some natural gasoline is said to be in demand for uses other than blending with naphtha. Both of these markets are slow and unchanged in price, principally because of the low prices in the gasoline markets and because of seasonal considerations. Ruling prices on naphthas, gasolines and natural gasolines at the close of last week were as follows: 50-52, 450 endpoint naphtha, 2⅜ to 2½ cents; 56-58, 450 endpoint, 2⅛ to 2¼ cents; U. S. Motor gasoline, 2⅛ to 2½ cents; 60-62, 400 endpoint, 2½ to 2¾ cents; 64-66, 375 endpoint, 2¾ to 3 cents; 64-66, 437 endpoint blended gasoline, 2⅛ to 2¼ cents; 68-70, 360 endpoint, 3 to 3¼ cents; Grade A, 72-79.9, 375 endpoint, 1⅞ to 2 cents; Grade AA, 80-87.9, 375 endpoint, 90 per cent recovery, 1⅝ cents; Grade BB, 84-92, 375 endpoint, 85 per cent recovery, 1½ cents.

(Continued on Page 103)



CLASSIFIED WANTS

Read by Oil Men Everywhere

RATES

The rates for Classified Advertisements are 35 cents a line for the first insertion and 25 cents a line for each additional insertion. Six words usually constitute a line. The following table will enable you to figure the cost of your advertisement:

	1 time	2 times	3 times	4 times
3 lines	1.05	1.80	2.55	3.30
4 lines	1.40	2.40	3.40	4.40
5 lines	1.75	3.00	4.25	5.50
6 lines	2.10	3.60	5.10	6.60
7 lines	2.45	4.20	5.95	7.70
8 lines	2.80	4.80	6.80	8.80
9 lines	3.15	5.40	7.65	9.90
10 lines	3.50	6.00	8.50	11.00

Compute white space at the above rates.

For rates on Classified DISPLAY see opposite page.

Mail your Classified Advertisement to

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

EQUIPMENT WANTED

AM IN THE MARKET for standard steel 84 foot drilling rig and heavy duty rotary steel drilling rig. Also both standard and rotary drilling tools. Also casing in all sizes from 20" to 5½". Also steel tanks of various sizes. All equipment must be first class and very cheap. Address Box 467, Red Cloud, Nebraska.

CASING WANTED

Will give substantial interest in lease and well in Oklahoma City field for 5,500 feet 40 pound 9" casing and 6,500 feet 26 pound 6⅝" casing needed for completion of well. Have well financed except casing. Well now drilling below 2,500 feet. Located in heart of best Wilcox area offset by 40,000 to 50,000 barrel wells with 150 feet or more Wilcox oil sand. Consider location certain for 40,000 to 75,000 barrel well. Quick action necessary. Write Box E-504, The Oil and Gas Journal, Tulsa, Okla.

WANTED TO BUY: Several No. 3 National steel drilling machines. Quote best price and state location. Address Box E-509, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—EQUIPMENT

FOR SALE FOR LEASE
Four 10,000-gals. tank cars coiled. 50 ton trucks. Victor Car line, 111 West Jackson Blvd., Chicago, Ill.

SPECIAL BARGAINS
Factory Rebuilt Star Drilling Machines —Steam or Gasoline Power—Tractor and non-tractor types. Greatly reduced prices. THE STAR DRILLING MACHINE CO. Akron Ohio, or Chanute, Kansas.

FOR SALE. Filter presses. All types and sizes. New and used. G. M. Kohler, 1013 East 8th St., Los Angeles, Cal.

FOR SALE for a low price. A gasoline powered Sullivan Diamond Core Drill. Write Box E-492, The Oil and Gas Journal, Tulsa, Okla.

INGERSOLL-RAND COMPRESSORS
With vertical intercoolers, good as new. (3) 10x4½x10 belt driven XOB, starting 1,000 lbs., working 750 lbs., cost new $2,141.00. (1) 11x5x10, XOB start. 750 lbs., working 400 lbs., cost $2,240.00. (1) 13x7x12, 300 lbs., 200 lbs., cost $2,585.00. Reasonably priced for quick sales. MONTAGUE OIL CO., ZENORIA, LOUISIANA.

FOR SALE — Slightly used Ingersoll-Rand steam two stage, 250-pound air compressor. Piston displacement. 312 cubic feet per minute at 200 r.p.m. Complete with intercooler and receiver. Write Box E-456, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—EQUIPMENT

RECONDITIONED PIPE AND CASING. All Sizes. Our Prices Are Right. LEE MORRISON SUPPLY CO. BARTLESVILLE, OKLA.

MAGNETOMETER—Practically new. Will sell for one-half cost price or will operate same on some workable basis. M. P. ROGERS, 915 HAMILTON BLDG., WICHITA FALLS, TEXAS.

BUSINESS OPPORTUNITIES

DEEDED MINERAL interest spread covers 6 tracts one under 5,000 barrel well in Rusk County new field. Write for map. ¼ mineral rights 142 acres Bee County 1,200 feet from 450 barrel well $250.00 basis. 7,905.5 acres new 10 year paid up lease ¼ royalty same term Edwards County, Texas, in active line of play $1.25 acre. Stieren & Koenig, Alamo National Bldg., San Antonio, Texas.

$12.50 BUYS DEED part oil, 2 Oil Royalties City Pool. Ed Milam, Dept P., Oklahoma City, Okla.

CHEAPER THAN leases. Owner offering fee 400 acres Crane County near production. Jeff Smith, Nalle Bldg., Austin, Texas.

OIL located before drilling. Geophysical method. Toggodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses, 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

CAN FINANCE legitimate deals requiring $2,500 or more. Corporations formed any state. Mail sales campaigns, booklets, etc. Coast Service, 314 W. Wilson Bldg., Huntington Park, Calif.

FOR SALE, TEXAS COMPANY BULK AGENCY. Good town on intersection of two national highways. Box E-503, The Oil and Gas Journal, Tulsa, Okla.

AVOID GETTING BROKE. Don't place all eggs in one basket. Recognize wise policy of investing part of your capital in other enterprises. For particulars of something unusually attractive to oil men and others, write Engineer, Box E-515, The Oil and Gas Journal, Tulsa, Okla.

GAS PROJECT PROMISING LARGE PROFIT and opportunity to develop important utility operation, serving several cities and towns. Want partner with $2,500.00. Money refunded. Address Box E-517, The Oil and Gas Journal, Tulsa, Okla.

ASSOCIATES WANTED
Need $10,000.00 for extraordinary "Wildcat" venture. Write Box E-516, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE: Forty Barrel per day shallow oil production, 3 wells on 120 acres. No. 1 Well 588 feet (28 feet sand), No. 2 Lime Well 900 feet (4½ feet sand), No. 3 Well 600 feet (30 feet sand), in Southern Indiana. 350 barrel Steel Storage, 3,100 feet pipe line, power plant, all in excellent condition. Will sacrifice on account of depression. Property can be inspected any time. Address Box E-512, The Oil and Gas Journal, Tulsa, Okla.

JOBERT OIL DRILLING COMPANY offers fifty divided assignments interest nonassessable in drilling well on forty acre lease, mile and half from production Kilgore, Texas. Interest money back from first oil runs before company receives a cent. One thousand dollars per. Send money to Citizens Bank or 300 South Saunders St., Tyler, Texas. No stock or units but ownership interest. Total interest in seven-eighths lease one hundred. Jobert Petroleum Company, 300 South Saunders, Tyler, Texas.

OWN 700-BARREL REFINERY, new process and a proven success, unlimited possibilities. Will trade interest in refinery for interest in production and move refinery to location. Prefer New Mexico. Write J. L. Havins, Box 84, Mexia, Tex.

NATURAL Gas or petroleum accurately designated from the surface by new geophysical method for expenses and interest in production. Write Oil & Gas Reports, Inc., 428 Union Trust Bldg., Pittsburgh, Pa.

BUSINESS OPPORTUNITIES

CURTIS BROKERAGE COMPANY
dealers in
Used Oil Field Equipment
for
Drilling, Production, Gasoline and Pipe Line Departments.
List your surplus with us. And advise us of your needs.
S. O. Curtis, P. O. Box 1214. Seminole, Oklahoma.

HAVE MADE LOCATION, Oklahoma City Field, offsetting 41,000 bbl. Wilcox well. Will pay a few investors $10,000 out of first oil for $5,000 cash invested, as well progresses. Write Box 489, Shawnee, Okla.

PARTNER WANTED to assist in organizing a company to explore large blocks of prospective Oil and Sulphur lands in the Texas Gulf Coast. Prefer man who has connections with northern States and Canadian Paper and Rubber Manufacturers. Will arrange interview and inspection of properties. References exchanged. R. T. S., 211 S. High St., Longview, Texas.

WANT PARTY to assist in financing test well on 1,200 acre lease located within 12 miles of 15,000 Bbl. GUSHER in Anderson Co., Texas, close to pipe lines and R.R. Good geological report and in direct trend of large production. Will give 50/50 interest in entire lease for QUICK ACTION. Box E-506, The Oil and Gas Journal, Tulsa, Okla.

CAPITAL furnished worthy oil companies. Send full details your requirements to Box E-513, The Oil and Gas Journal, Tulsa, Okla.

INCORPORATIONS

CHARTERS — Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

INCORPORATE YOUR BUSINESS. Delaware State Laws. Many advantages. Cost $46.50. Write Today. Free information. Dept. 16, Corporation Fiscal Co., Wilmington, Del.

HOTELS

HOTEL CUSHING
Cushing, Oklahoma
"Where Oil Men Meet"
Modern, Fireproof, Coffee Shop.

NEW BRADY HOTEL, TULSA, OKLA.
Tom Wilson, Mgr.
Fireproof, remodeled, new management. Free parking. Prompt, courteous service. Rates $1.00 up. Private baths $1.50.

HOTEL HAWLEY
McPherson, Kansas.
"The Oil Men's Home"
Modern fire-proof Hotel. Rooms $1.50 up

FOR SALE—MAPS

SOUTHEAST NEW MEXICO
MAPS
Send for list.
THE M. H. HUNTER. CO.
Roswell, N. Mex.

OIL DEVELOPMENT maps, any county in Oklahoma, 75 cents each; lease block and detail maps. Write for map list. Lindsay Map Co., Franklin Bldg., Oklahoma City, Okla.

M-A-P-S

We have the only complete line of general area, lease ownership and oil development maps in East Texas.

Prices on Request

ZINGERY OIL MAP CO.
Fair Bldg. Fort Worth, Tex.

KANSAS OIL FIELD MAPS
The Kansas Blue Print Co.
Wichita, Kans.

NEW MEXICO OIL MAPS — New white print with key explaining present activities in Torrance and surrounding territory just completed. Price $1.50. New white print, any county, $1.00. Staplin & Staplin, Santa Fe, New Mexico.

SERVICE

FORD TRUCKS FOR OIL FIELD USE
New—Used.
BENGSTON MOTOR CO.
Phone 10. McPherson, Kansas.

MONEY RAISING

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 2443 N. W. 12th, Oklahoma City.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

IF YOU WANT your securities or proposition intelligently submitted to underwriting and security selling houses in New York, write W. W. Hines, Room 808, 150 Broadway, New York City.

CAPITAL: An exp. dependable broker will aid in financing projects of merit. Amster Leonard, East Orange, N. J.

CAPITAL—Call or send facts about high grade oil projects to James E. Miller Co., Room 200 New Brady Hotel, Tulsa, Okla.

CORPORATE ORGANIZING AND FINANCING
BROOKWORTH,
110 East 42nd St., New York

WE CO-OPERATE in securing capital and guarantee to repurchase your securities. Send facts to the Stow Security System. 2057 Center St., Berkeley, Calif.

JOHN MORRIS, 3608 WARREN ST., PHILADELPHIA, PA., invites full facts first letter from capable parties planning negotiation of reasonable capital support for undertakings distinctly of higher order. Use registered mail, safeguard data.

SOUND PROPOSITIONS seeking capital for development or expansion send details. S. I. C., 82 Wall Street, New York City, N. Y.

OIL INDUSTRY PRINTING

ORDER your oil and gas lease blanks from our large stock of forms. Leases, releases, agreements, etc. Prompt shipment. The Hutchinson Office Supply & Printing Co., Hutchinson, Kans.

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. New Mid-Continent Oil and Gas Ass'n. Unitization Committee Forms, Unit operating contract and accounting schedules. Samples gratis. Olds Press, 215 East Third Street, Tulsa, Okla.

PATENT ATTORNEYS

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone, send for blank form.
Evidence of Conception
Bulletin "How to Establish Your Rights" and complete information free.
LANCASTER, ALLWINE & ROMMEL
240 Ouray Bldg., Washington, D. C.

PUBLICATIONS

THE ROYALTY NEWS
The monthly magazine edited specifically for those interested in oil and gas royalties. Current Issue contains valuable news, statistics, company comparative statements, and articles on East Texas, Vencl Lease royalties in Oklahoma City, and wealth of material you can use to good advantage. Yearly subscription Two Dollars includes large oil map of 14 states. Write "The ROYALTY NEWS," 618 World Bldg., Tulsa.

WANTED

EXPERIENCED OIL MAN. $5,000 investment required. Permanent position for right party. Write Box E-482, The Oil and Gas Journal, Tulsa, Okla.

REPAIR

OIL FIELD TRUCKS REPAIRED
SIBERLING TIRES
The Heaston-Carter Motor Service Co.
McPherson, Kansas.

Repairs and Parts for International Oil Field Trucks—Prompt Service.
Crary Hardware Co.,
McPherson, Kansas.

CLASSIFIED WANTS

Create and Build Sales

LEASES—PRODUCTION

OIL LEASES AND ROYALTIES
Bought and Sold.
In the Hobbs Pool,
Lea County, N. Mex.
A. L. Gurley, Clovis, N. Mex.
P. O. Box 211 Phone 392

MINERAL DEEDS—LEASES
Mineral deeds under major company leases or accompanied by leases. Stevens-Morton County area, Ness-Trego-Gove area in Kansas and Beaver-Texas Counties, Oklahoma area.
J. W. SAIN
310 Brown Building
Wichita, Kansas.

OIL AND GAS LEASES and royalty for sale near Cumbie and Joiner wells, Van Zandt County; also in other parts of country. J. C. Allen, Grand Saline, Tex.

FREE DRILLING BLOCKS. Hot Spot East Texas; also leases, royalties under development. Ed. Willmann, Blackstone Hotel, Tyler, Texas.

KETTLEMAN HILLS
320 ACRES in the North Dome Area where the Superior's Huffman wells, Petroleum Securities' Felix wells and Associated's Whipley wells are producing the greatest flow of high-gravity oil in California.
STANDARD OIL COMPANY
Owns the land joining this 320 acres on three sides. Each completion of above large wells tends to prove this land.
UNION OIL COMPANY
Purchased a half interest in an oil lease covering 160 acres in this area for which it is reported they are paying eight million dollars or $100,000 per acre—mind you, this is just for an oil lease.
This 320 ACRES is owned outright, it is not leased and we have an outlook of receiving that kind of money for an oil lease plus the money to be received from production by Royalty retained.
I NEED MONEY
Therefore, I will sell a portion of this valuable holding at excursion rates. To the right parties I may sell a half interest. Good stocks and properties will be considered as part payment. A. E. WRIGHT, 406 SUBWAY TERMINAL BLDG., LOS ANGELES, CALIF.

10,000 Acres—Yalobusha County, Miss. 7/8th leases for well. 20 mos. free rentals 25 cents. Fine report. 217 Court Street, Memphis, Tennessee.

LEA AND ROOSEVELT COUNTIES
New Mexico, 1/64th interest perpetual mineral deeds under Major Oil Co. 160-acre leases. Price $25. Active areas. Roy G. Barton, Avalon Hotel, Clovis, N. M.

TIME TO RENEW: We can renew your New Mexico oil leases under new laws so as to give you 10 years with greatest possible advantages. Staplin & Staplin, Santa Fe, N. M.

MARKET FOR TEXAS OIL WELLS. Leases. Royalties. H. Roscoe Burt, 825 Wilson Bldg., Dallas, Texas.

ROYALTIES—PRODUCTION

AM SPECIALIZING in Texas Panhandle gas production royalties and leases. Business is good, the reason is am making prices in line with conditions and handling a line we have a home market for, and the best investments in U. S. today. Thirty years in business here. Write E. B. Reeves, Alanreed, Gray County, Texas.

$5.00 BUYS COMPLETE PRODUCTION report of the Oklahoma City Pool showing 791 wells, their location, date completed, and total recovery each well and lease to June 1st, 1931. Clyde Kelly, 504 Continental Bldg., Oklahoma City, Okla.

$100 WILL BUY 1/32 landowner's royalty on tract in C. M. (Dad) Joiner's new East Texas development. Excellent opportunity. A. L. Farrel 1, Grand Saline, Tex.

EAST TEXAS ROYALTIES on geology head of production with wildcats drilling close. Sensible prices and individual direct deeds. See maps and geology and pick your own play. Wells drilling make promptness important. R. R. Fisk, 1214-C, Wichita Falls, Tex.

ROYALTIES—PRODUCTION

MID-CONTINENT OIL ROYALTIES
Royalty Sales Company
Suite 523
105 North Clark St.,
Chicago, Ill.

ROYALTY RECORD
Form shows rental record, mortgage record, expenditures, sales record, tax record, well record, monthly production record. All on one sheet; size 8½"x11"; punched to fit standard ring binder. Convenient for desk or brief case. Sheets—$5 per 100; fine leather binder, $5.25; leather tabbed index, $1.20. Order this complete record today. Know what you own and its condition.
E. L. STECK CO.
Austin, Tex.

James B. McAnally

Speculative and Investment Royalties

Hunt Bldg., Tulsa, Okla.

A real royalty service for dealers. Now specializing in Oklahoma City Pool. Subscribing to all dependable sources of information—with buyers actually on the ground—taking our responsibilities seriously.

TWO TESTS IN PROGRESS in west half of Cleveland County, Arkansas. Perpetual royalties and leases at reasonable prices. Write or wire J. D. Shearer, Stuttgart, Ark.

ROYALTIES on structure, under drilling wells, Stafford, Ellsworth Counties, Kans. Franklin, Gregg, Rusk, Upshur and other East Texas areas. Fast, dependable service for brokers and investors, in United States and Canada. James R. Haynes, Grantville, Kans.

$12.50 buys deeds, part oil, two Oil Royalties City Pool. Ed Milam, Dept. W, Oklahoma City, Okla.

ROYALTIES—PRODUCTION

PRODUCING ROYALTIES
Constitute the Best Form of Oil Investment.
I HAVE THEM EVERYWHERE.
John L. Dickson, Box 1037, Tulsa, Okla.

WILL PAY CASH for producing Royalties anywhere. Send full information. Merrick C. Ham, Pres., Lamont & Co., Ltd., 1107-8 Bartlett Bldg., Los Angeles, Calif.

BEDROCK ROYALTY PRICES ahead of drilling on major company blocks. $6 per square mile. Perpetual deeds and title warranty. Clearly stated and understandable interests. See maps and bulletins. R. R. Fisk, Box 1214-B, Wichita Falls, Texas.

MID-CONTINENT OIL ROYALTIES at reasonable prices and with assurance of safety. Past record "Chicago dealer since 1920" indicates quick return of principal and handsome profit. Write me. J. A. Wolf, 208 South LaSalle St., Chicago, Ill.

POSITIONS WANTED

LUBRICATING ENGINEER: 10 years experience on lubrication of mining equipment, acquainted with Iron range, Copper mining; also Diesel equipment and any Steam equipment. Good references. Married. Move any place. Write Box E-505, The Oil and Gas Journal, Tulsa, Okla.

REFINERY SUPERINTENDENT
Now open for offer, fifteen years practical experience building and operating all types refineries. Technical training. Best references. Write Box E-501, The Oil and Gas Journal, Tulsa, Okla.

REFINERY SUPERINTENDENT
Construction and operation. Twenty-five years refinery experience. Write Box E-518, The Oil and Gas Journal, Tulsa, Okla.

CLASSIFIED DISPLAY RATES

The rate for Classified Display Advertising set in similar style to this Ad or in two Column style is as follows for each insertion:

1 inch	1 Time	$5.00
1 inch	13 Times	4.50
1 inch	26 Times	4.00
1 inch	52 Times	3.50

Rates for Classified without display shown on opposite page.

One point borders and ten point capitals are allowed, larger type not accepted.

Changes in copy must be in our office 10 days in advance of publication date.

Mail your advertisement to the Largest Classified Section in the Oil Industry.

THE OIL AND GAS JOURNAL
TULSA OKLAHOMA

POSITIONS WANTED

GRADUATE MECHANICAL ENGINEER: 8 years experience in shop, office, and field of complete oil well supplies. Desires permanent position with reliable concern, anywhere. Write Box E-514, The Oil and Gas Journal, Tulsa, Okla.

PRODUCTION SUPERINTENDENT with technical training and twelve years practical experience in various fields. Would like to make connection with reliable company about October first. Address Box E-511, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

I NEED A SALESMAN to sell Oklahoma oil royalties and land. My plan would place you in business for yourself. Write Box E-493, The Oil and Gas Journal, Tulsa, Okla.

MECHANICAL ENGINEER thoroughly trained in design of rotary rigs with long experience in office and shop work wanted by European oil well supply works. In reply please give information concerning your personal history and details concerning your education and experience; send kodak picture of yourself; state salary expected and date available. Location Germany. Write Box E-498, The Oil and Gas Journal, Tulsa, Okla.

OLD LINE established refining company three refineries capacity, twenty thousand barrels daily requires services of sales-manager to handle fuel oil and gas oil production. Only highest type man presently or recently employed with established record of accomplishments who can produce immediate business in large volume need apply. Write P. O. Box 1929, Tulsa, Oklahoma, giving full details and personal interview will be arranged if thought desirable.

WANTED—REFINERY SUPERINTENDENT, Mid-Continent Refinery, with thorough cracking unit experience; also skimming, lubricating oil, industrial naphthas, etc. Good opportunity for the right man. Address Box E-510, The Oil and Gas Journal, Tulsa, Okla.

SUPPLIES

THE DRILLERS SUPPLY CO.
Oil Well Supplies.
McPherson, Kans.
G. M. Seybold, Manager.

USED EQUIPMENT

that can be had for a song is constantly being advertised in these pages. Why not take advantage of this market to do your shopping in?

The Oil and Gas Journal
TULSA OKLA.

Mixed Trends in East Coast Market

Prices Holding Unchanged on Principal Products. Approval of Code of Ethics by Federal Trade Commission Helpful

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, June 22.—Mixed trends were discernible in East Coast refined products markets during the week, with prices holding unchanged on principal products. Gasoline was still in easy position in refinery markets, largely reflecting the situation in East Texas and in California. With California crude prices higher, however, and prospects for a sharp curtailment in East Texas crude production brighter, eastern refiners, who have materially reduced their gasoline stocks in recent weeks, were inclined to view the outlook with respect to gasoline with more confidence.

Indorsement by the Federal Trade Commission of the industry's code of ethics, with some revisions, has likewise brought about a better feeling in the marketing end of the business, and large distributors are looking for some reforms in marketing practices during the summer months.

Another constructive factor stressed by some interests here, although apparently overlooked by many in the trade, is the recent substantial increase in export gasoline business at the Gulf. While this renewed foreign buying, which takes in both gasoline and kerosene, has been done at extremely low prices, it reopens an important marketing channel for domestic output of motor fuel and illuminating oils, and lightens, in direct ratio, the load of the domestic market. Thus, while East Texas gasoline gives promise of continuing a major factor in eastern markets throughout the summer, the heavier export movement of this product presages a lightening of "outside" competition in eastern territory during the summer motoring season. Local gasoline inventories have been reduced to the point where it is felt that East Texas and California gasoline shipments can be absorbed by eastern markets with a minimum of price disturbance, and, while no material advance in eastern gasoline quotations is looked for, it is believed that the market is now near bottom for the current move.

Interest has been centered to some extent in the South American situation this week by published reports that the major American companies operating in Venezuela, who are now working under a voluntary import restriction plan, covering both crude oil and gasoline, would "lift the lid" on imports during the second half of 1931, and radically increase their imports.

While official announcement has not been forthcoming from any of the companies involved, it is understood unofficially that no increase in imports is contemplated—on the contrary, further cuts in shipments may be made.

The companies interested in Venezuela voluntarily reduced their imports as a co-operative measure in furthering the proration movement in the United States early in the year. Notwithstanding the fact that proration has been ineffectual, largely through excessive flush production in East Texas, there is no incentive for the major companies to further add to the oversupply of oil in the United States, it is pointed out. The only end which a removal of the voluntary import curb could achieve, it is said, might be retaliatory action against East Texas producers who have thus far refused to join in conservation measures, but this punitive action, it is added, would serve no real end and would only intensify the losses suffered by all involved.

The renewal of agitation by independent producers for an embargo on imports of crude petroleum and refined products have come in for some attention, but it is felt that if East Texas continues on its present rampage with further demoralization of prices for both crude and products, the law of economics will automatically operate to cut imports of South American oil to the bone. Operators in Venezuela and Colombia, principally the major companies, have unit operation down to a fine point in their territories, and are in position to virtually shut in all production pending improvement in the world oil position and price structure.

Refinery Gasoline

While the statistical position of the eastern refinery gasoline market has shown substantial improvement during recent weeks, fundamental market conditions have failed to share this better feeling, and the situation here is still materially affected by the heavy offerings of outside gasoline for shipment here at extremely low prices. East Texas in particular is a factor locally, with heavy quantities of gasoline from this area for delivery at East Coast ports over the summer months at extremely low prices. California, too, has some soft spots, and it is feared here that refining interests on the Pacific Coast which are faced with the necessity of turning some of their surplus stocks of products (principally gasoline) into cash may dump a portion of their excess holdings in eastern markets "at a price" during the summer season, which would further retard market recovery in local territory. The advance in California crude prices, however, has tended to bring about a better feeling here with respect to the "California menace."

Locally, posted prices for U. S. Motor range from 5½ to 6¼ cents per gallon at marine terminals for tank car lots, although the inside price has been shaded in some instances. Demand was well maintained throughout the week, and local refiners drew further on storage.

East Coast refiners have substantially lightened their gasoline inventories during recent weeks, and material progress is being made in cutting down surplus stocks in this district. The following table shows the trend in refinery gasoline stocks in this district for the past five weeks:

Week ended—	Bbls.
June 13	7,833,000
June 6	8,156,000
May 30	8,267,000
May 23	8,414,000
May 16	8,443,000

Jobbers are still limiting purchases to virtually immediate needs, and are unwilling to book any forward deliveries unless their contracts are surrounded with all kinds of safeguards.

Tank Wagon Gasoline

Approval by the Federal Trade Commission of the industry's code of ethics, with minor revisions, has brought about a pronounced change in sentiment among marketers in the East, and the outlook for the summer season is brighter.

Approval of the code is expected to result in the elimination of some of the more disadvantageous phases of competitive methods, but price-cutting competition has become so general during the past month or so, during which period the fate of the code appeared in doubt, that much of the industry's fight against unethical and shady marketing practices will have to be fought all over again in some sections of the territory.

While no formal revisions in posted prices for gasoline have occurred in local territory during the week, there is a perceptible trend toward higher price levels in many sections of the territory. "Local competition," the bane of leading marketers and the stock explanation for all but general price revisions, is not so conspicuous and there is a pronounced trend back toward posted price levels in many sections.

The start of the summer vacation season, with its accompanying gain in motoring, has resulted in a substantial increase in gasoline sales in many parts of the territory where the market has been stagnant during recent months, and with distribution steadily broadening and gallonage on the increase from week to week, marketers are showing more optimism than has been in evidence for some months past.

Second and third-grade gasolines, offered in one or two instances by major marketers, have brought in more gallonage to these sellers, without reacting against the volume on their higher grades, the natural inference being that this business is being taken back from the independents who have created so much havoc in eastern marketing circles by their cut-price marketing practices during the past several months.

Lubs

The outstanding development of the week was the awarding of the Navy Department lub oil contracts, deliveries on which will begin July 1, next. Sinclair Refining was the largest beneficiary under the award, receiving contracts aggregating $272,556 for lub oil to be delivered to Navy posts on the Atlantic Seaboard and in other parts of the East. Associated Oil Co. was awarded contracts for $103,646 worth of lub oils for delivery on the West Coast, with Standard of California receiving contracts aggregating $53,307 for delivery in the same territory and in Alaska. The Texas Company received $13,641 in lub oil business for deliveries on the Pacific Coast, Honolulu and Alaska, while Tide Water Oil Sales Corp. was awarded a contract for $31,380 in lub oil for delivery at East Coast points and Galena Signal Oil booked $68,175 in business for delivery in the East. Minor awards were made to Gulf Refining Co. and Standard Oil Co. of Indiana.

Out of the total gallonage of approximately 3,100,000 gallons involved in the awards, Sinclair received orders for 1,442,000 gallons, the average price per gallon being slightly under 19 cents per gallon. Various types of lub oils are involved in the contract.

Awarding of the Navy contracts failed to affect prices in the spot market, quotations for all grades of cylinder oils remaining unchanged throughout the period. Demand for prompt shipment stocks had shown some improvement, and sellers were looking for a better market tone once the market feels the full effect of the summer increase in consumption.

Red and pale oils were without price change during the week, demand continuing quiet along routine lines.

Fuel Oil

Bunker "C" remains unchanged at 85 cents per barrel, bulk, terminals, the lowest price on record in this territory. Refiners reported a moderately active demand during the week. Some falling-off in consumption is looked for from shipping interests during the closing half of 1931, as a number of lines have announced that they will omit several scheduled transatlantic voyages during the summer season. There is a strong possibility, however, that these vessels may be placed in the week-end cruise service, in which event gallonage will be maintained, and possibly increased, due to the fact that vessels will do all of their bunkering here rather than half here and half in Europe, as is now being done by many lines who have been buying cheap Russian fuel oil abroad.

Industrial demand for fuel oil is rather sluggish at this time, the market being in rather easy position.

Diesel Oil

The placing of new Diesel-burning vessels into service out of New York has gone far to counteract the drop in gallonage incidental to the laying-up of Diesel freighters in some lines of trade, and business is reported holding up fairly well in local territory.

While the current posted price for Diesel oil, $1.55 per barrel, bulk, at East Coast refinery terminals, is the lowest price on record, the market does not appear any too strong at this level, and refiners are closly watching the situation with respect to offerings of low-priced Diesel oils from other refining centers. Further downward revisions in posted prices locally will be made, it is felt, if either East Texas or California refiners offer Diesel in any sizable quantities for shipment into Atlantic Coast territory at laid-down prices under prevailing levels here.

Gas Oil

Spot trading was confined to small lots for immediate delivery, the market holding nominally unchanged at 4 cents per gallon for 28 plus recycled oil in tank car lots at refineries.

Large utility companies in this area are taking gas oil in moderately large quantities, but are buying for immediate needs only and are not accumulating reserve stocks at summer price levels, as has been the case with many of the gas manufacturing companies in this territory in former years.

Petrolatum

Sellers have radically revised their prices to lower levels, and the market is in rather soft position with buying considerably under normal for this season of the year. Demand eased off materially during the latter part of May, and suppliers lowered their prices in an effort to stimulate business this month. Current quotations are: Dark green, 1⅝ cents per pound, off one-eighth; amber, 2⅝ cents, off three-eighths; extra amber, 2⅞ cents, off three-eighths; cream, 5⅝ cents, off three-eighths; lily white, 6½ cents, off one-quarter, and snow white, 7 cents, off 1 cent per pound.

Pharmaceutical manufacturers and other large consumers who normally come into the market for substantial quantities of petrolatum for prompt and nearby shipment around midyear have thus far failed to submit their usual inquiries, and it now appears probable, in view of the general weakness in the petroleum situation, that consumers who normally contract their requirements for three to six-month periods, will instead operate in the spot market over the balance of 1931, in order to keep themselves in advantageous position in the event of further price revisions.

The lower level of quotations now prevailing on export grades of petrolatum, however, is expected to stimulate foreign buying of the product, and traders look for an early upturn in activity in this division of the market.

Paraffin Wax

A slight quickening in demand developed during the week, with sellers reporting some domestic business booked

for July and August shipment. Buyers in most instances, however, are reluctant to contract ahead unless they are offered sizable concessions from current spot price levels, and refiners in most instances are unwilling to meet buyers' price views to this extent.

Export interest in refined wax "at a price" continues active, and sellers with burdensome surplus stocks on hand have been able to liquidate some of their holdings through sales for shipment abroad, with business reported done at about one-eighth cent per pound under quoted levels.

Export Market

Foreign buying of domestic gasoline at the Gulf, which attained considerable momentum during the early part of June, eased off substantially during the past week. Inquiries for three cargoes, aggregating between 120,000 and 160,000 bbls. of 64-66, were in the market during the early part of the week, but buyers were unwilling to pay over 3½ cents per gallon, and suppliers were holding out for 3⅝ cents. There is a possibility that buyers and sellers will be able to get together on a price during the coming week, and that this business will not be lost to the Gulf in favor of Russia or Rumania, as has been the case with so many other cargoes during recent months.

No trading was reported in either Venezuelan or Mexican crude during the week, and prices remained unchanged on these oils.

While there was considerable talk with respect to export business in East Texas crude during the week, no actual business was closed. Reports of asking prices for East Texas crude in the field vary all the way from 12 to 20 cents per barrel. The cut in tank car freight rates from the interior to Gulf ports is expected to result in producers being enabled to quote a more attractive price for export crude, laid down at Gulf terminals.

The situation with respect to offerings of East Texas oil for export has been considerably clouded by the activities of brokers representing royalty holders and other small interests. While these interests have been quoting low prices, buyers have been reluctant to enter into negotiations, preferring to confine their operations to the larger established producing firms and other well established interests which are offering East Texas oil on term contracts at attractive price levels.

Petroleum Exports

Uncertainty in refined products markets has made for continued light trading in the local export market, and exports for the week ending June 13 continued confined to routine quantities.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended—		
	June 13	June 6	May 30
Gasoline	175,000	140,000	115,000
Naphtha	275,000	.....	815,000
Kerosene	95,000	270,000	48,000
Fuel oil	6,000	5,000	130,000
Lubricating oil	785,000	1,775,000	1,170,000
Petroleum, ref.	480,000	310,000	900,000
	Pounds		
Petrolatum	20,000	.....	.....
Paraffin wax	1,060,000	1,318,000	1,160,000
Refined	.....	115,000	325,000
Scale	240,000	220,000	975,000
Lubricating grease	765,000	775,000	530,000

Recent sharp price cuts in export gasoline and kerosene in bulk at the Gulf have resulted in a marked falling off in buying interest in these products in the local market, and sellers of cased gasoline, naphtha and kerosene are being forced to revise their prices downward in line with the lower bulk market. Russia continues to furnish sharp competition in the sale of cased products in export markets, and considerable business which in former years reached local sellers is now going to the Soviet.

Considerable export interest has been shown locally in lubricating oils, paraffin wax, and other minor products, but buyers are disposed to withhold their business until the last minute in an endeavor to obtain the best possible prices. The recent history of the market for these products has been one of steady declines, and as a result of this condition, foreign buyers are now on a hand-to-mouth purchasing basis.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended June 13 totaled 1,927,000 bbls., a daily average of 275,286 bbls., compared with 925,000 bbls., a daily average of 132,143 bbls. for the previous week and a daily average of 213,464 bbls. for the four weeks ended June 13. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	259,000
Boston	142,000
New York	1,180,000
Philadelphia	228,000
Others	118,000
Total	1,927,000
Daily average	275,286
At Gulf Coast ports—	
All ports	None
At Atlantic and Gulf Coast ports—	
Total	1,927,000
Daily average	275,286
Daily average four weeks	213,464

Distribution of total imports is as follows:

Crude	1,124,000
Gasoline	405,000
Gas oil	63,000
Fuel oil	335,000

California Oil Receipts

Receipts of California crude and refined petroluem at Atlantic and Gulf Coast ports for the week ended June 13 totaled 179,000 bbls., a daily average of 25,571 bbls., compared with 438,000 bbls., a daily average of 62,571 bbls. for the previous week and a daily average of 41,429 bbls. for the four weeks ended June 13. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
New York	155,000
Others	24,000
Total	179,000
Daily average	25,571
At Gulf Coast ports—	
All ports	None
At Atlantic and Gulf Coast ports—	
Total	179,000
Daily average	25,571
Daily average four weeks	41,429

Distribution of total California oil receipts is as follows:

Gasoline	179,000

Shipments of California refined products for Atlantic and Gulf Coast ports during the week (with identity of owner of tanker moving the oil where such owner is an oil company) were as follows:

For Fall River, Mass., 80,000 bbls. of gasoline on the M. F. Elliott.

For Sewaren, N. J., 76,000 bbls. of gasoline on the Baldhill (Richfield Oil Co.).

Charter Market

Recent activity in the export markets for both crude petroleum and gasoline and kerosene at the Gulf has brought about a revival of interest in tanker charters from this point, and the market last week was quite active, with prospects of further improvement in trading in the near future.

Fixtures reported in the world tanker charter market during the past week follow:

Motorship G. C. Brovig (Nor.) 1,300 tons, dirty, Venezuela or Tampico to Ostermoor, p.t., July.

Motorship Deodata (Nor.) 2,241 net, gas oil, Constanza to Cueta, 5/9, prompt.

Motorship Solstand (Nor.) 3,435 net, clean, Constanza to U.K./Continent, 6/9, July loading.

Motorship Lincoln Ellsworth (Nor.) 7,500 tons clean, Palembang to Marseilles, 15s, July loading.

Motorship Svolder (Nor.) 8,000 tons, clean, Gulf to two ports, U.K./Continent, 9s., option three ports at 9s. 6d., July 1/10.

Motorship Storsten (Nor.) recently fixed for 4,000 tons, clean, Gulf to Hamburg at 10s. 6d., has booked balance of cargo to U.K. at 10s. 6d., June loading.

Motorship Jenny (Nor.) 2,682 net, crude benzine, Novorossisk to Hamburg, 8s. 3d., July loading.

Steamer Malmanger (Nor.) 4,421 net, crude, Gulf to Port de Bouc, 9s., July 10/31.

Steamer Myriel (Dut.) 2,210 net, clean, Constanza to St. Louis du Rhone, 6s. 3½d., end June loading.

Motorship Carpena (It.) 3,462 net, clean, Black Sea to U.K./Continent, 7s., June 25/July 5.

Steamer Oiltrader (Br.) 3,261 net, clean, Black Sea to U.K./Continent, 6/9, option Gulf loading 9/-, July.

BETTER DEMAND IN CHICAGO MARKET AREA

(Continued from Page 99)

A good grade of antiknock gasoline is offered at 3 cents.

Kerosene

The kerosene markets continue extremely dull. It is commonly reported here that some of the kerosene which is moving is finding its way, with the assistance of natural gasoline, into some of the service station pumps. The low price of gasoline is given as the cause for the sag in kerosene this spring during the planting season. The same difficulty may be in operation at harvest time. Prices: 41-42, water white, 2 to 2⅛ cents; 42-44, water white, 2⅛ to 2¼ cents.

Lubricating Oils

There are no indications that further reductions will be made in lubricating oils at the service stations. The price was recently cut from 35 cents a quart to 30 cents a quart. Crude oil cuts have brought reductions in the bright stocks and neutrals markets. The advent of the motoring season has inspired widespread offers of branded high-grade lubricating oils from cut-rate sources at prices ranging from 15 cents a quart to below 10 cents a quart in quantities of 5 gallons.

Fuel Oils and Gas Oils

Offers of 10-cent fuel oil from Texas, Louisiana, Indiana and Illinois continue to be heard. One of the largest U.G.I. gas oil accounts in the city is scheduled to drop out of this market when natural gas arrives in Chicago from Texas. At the largest of its six plants in the city this consumer used 35,000,000 gallons of gas oil in 1930 in enrichening carbureted water gas. As the time approaches for the introduction of the natural gas and artificial gas mixture in Chicago, it is understood that fuel and furnace oil marketers are getting into a position where they can meet this competition satisfactorily.

Tank wagon quotations are low and much of the material offered is of much better quality than its gravity classification indicates. A cracked residue of 18-22 gravity, but of exceptionally low viscosity and high B.t.u. content, is offered at 3.5 cents off the tank wagon price with a half cent rebate for quantities over 15,000 gallons.

EFFECT OF SHUTTING IN PRODUCING WELLS

(Continued from Page 17)

the projected decline line on the production curve.

This study of wells closed in for practically 36 hours each week showed the peculiar characteristics of individual wells for some of them acted in a very erratic manner and would suddenly drop off in rate of production and at other times would show little or no decline when opened up after the week-end shut down. A study of the decline and production curves on these wells indicates that even these erratic wells may be expected to show an increase in production before long.

In a study of other leases it has been shown in many cases that wells have been produced unnecessarily. Where a close study has been made it has been shown that two wells on an eight-well property will make practically all the oil the lease will produce so six wells could be shut down without any real loss in production and with a very definite saving in production costs.

Where wells must be shut in it is sometimes of advantage to make a careful study of the gas-oil ratio of the wells and then close in the wells that make the highest gas-oil production with the idea in mind of conserving the gas. This practice may later lead to a better recovery for the lease because the gas can be made to do more work in moving the oil where its movement through the sand is restricted and it is not permitted to make an easy escape to the well through open channels in the formation without carrying the oil with it.

Return Oil to Sands

There has been suggested a plan to pump wells making water along with the oil and after the water and oil has been separated at the surface to return the oil to the sands again. In such a scheme it is proposed to return the oil only to that portion of the sand that is already wetted with oil for if it is returned to the gas area a considerable portion would be lost in wetting those dry sands and the ultimate recovery lowered.

There are some objections to be made to this suggested practice in that it is possible that an emulsion may be formed in putting the oil back in the wells, especially if there were any water left in the oil and any gas in the well. In one instance where this was tried in eastern fields this forming of emulsion actually occurred, although in that case the wells were being produced by gas lift which may have been the influencing factor in making the emulsion.

The big thing to be gained by pumping wells and returning the oil to the sands is the maintenance of a steady flow of fluid to the well for it is not anticipated that the water level will be materially lowered by the pumping. It might be worthy of consideration in some places but a careful survey of all conditions that would influence results should be made before the practice was started.

Closed in Wells Benefited

There seems to be numerous cases where production has actually been benefited by shutting down the property for a time. When opened up many wells have shown a decided increase in production, not only at the time of reopening but for a very considerable time after although data are not available to determine what the ultimate effect will be.

One case in point is cited where a well making about 1½ bbls. of oil per day was shut in for a period of two months. This would mean a loss of about 90 bbls. of production. When the well was again put on the pump it was found that it produced 43 bbls. the first day and continued to produce at the rate of from 16 to 12 bbls. daily for about 10 days and then gradually decreased to a 5-bbl. pumper.

Another well that was shut down for six months made up all deferred production in the first six weeks after being again put on the pump.

In Seminole area wells have been shut in for a six months' period with only infrequent pumpings and when opened up made 125 bbls. daily whereas they were only making from 90 to 100 bbls. per day when shut down. It was also found that in some cases where wells have been shut in the oil has gained on the water and when opened up again the amount of water produced per barrel of oil was materially decreased.

Where wells have been switched from gas lift to pumping during a period of shut down it has been found in some instances that the amount of oil recovered has been increased after the change.

Some work has been done with strings of tapered tubing where the lowest portion of the string has been as small as one-half inch in diameter and these tests indicate that some wells can be made to flow naturally. This tubing string is made up of one-half, three-fourths, 1 and 1½-inch tubing listed in order of size from bottom to top of the well.

Shut in Areas Repressured

In some areas where repressuring is being practiced it is proposed to shut down production of the wells but to continue to inject gas under some pressure into the sand. By this practice it is hoped that the oil will be forced ahead of the water to wells that will flow when opened and as it is proposed to keep an accurate check upon the movement of this oil through the sand during the shut down period it is hoped to so build up the pressure within the producing reservoir that a number of the wells will flow

25 Miles of Pipe in Four Days!

We made this record recently in laying a 10-inch pipe line through the swamps of East Texas for the Texas Pipe Line Company. An emergency arose which made it necessary that the 60-mile line under construction be completed considerably in advance of the time limit originally set. *So we did it!*

An organization capable of welding, bending and tieing-in 25 miles of 10-inch pipe in four days must possess:

Stamina
Efficiency
Excellent Equipment

Let's get together on *your* next job.

N. A. Saigh Company

Pipe Line Engineers and Builders

Builders Exchange Bldg. San Antonio, Texas

naturally when the need for further shut down is over.

It is possible that a combination of repressuring during the shut down period and the use of small strings of tapered tubing, when the wells are again opened, may bring many of these wells back to natural flow. It is also possible that by the proper use of the bottom hole choke the wells can be made to flow steadily after the pressure within the reservoir has been re-established.

Wells in Kansas have been checked and it has been found that some that were making about 1 bbl. of oil and 25 bbls. of water per day when shut down, made from 3 to 5 bbls. of oil when again opened up with about 25 bbls. of water.

Another well shut down November, 1930, making 2½ bbls. of oil and 28 bbls. of water at that time was reopened in April, 1931, and produced on the pump 22 bbls. of oil for three days and then dropped to from 14 to 12 bbls. of oil for another short period and settled down to a 7½-bbl. pumper with about 10 bbls. of water. This decreased production of water and increase in oil was made under practically the same producing conditions as existed before the well was shut down.

It has been proven an advantage in many fields to pump wells intermittently and there seems to be a very decided tendency toward the conclusion that wells will be materially benefited if they are given a period of rest from time to time, or if the rate of production is decreased so that the natural forces at work in the formation will have more time to equalize.

In the Smackover, Ark., Field it has been found that wells shut in have increased water and decreased oil production when again opened up but from a study of the decline curve it seems probable that this is only an apparent change in conditions for if the well had continued on the pump over the shut down period it might still be making more water and less oil.

Careful Check Necessary

It is very necessary that a careful check be made of water conditions in a well and in the surrounding area before wells are shut down. If it is found that the water is actually coming from leaky casing above the producing horizon it might be well to fill the hole opposite the sand with mud before shutting down to keep this water from working back into the producing sand while the well is inactive. This mud could be easily cleaned out when the well is again put on production and would certainly present much less of a problem than it would if allowed to become full of water from a stratum above.

In some wells it has been observed that water coming from below the oil has had no effect upon the well when it was shut in for the oil has worked up through the water until an equilibrium has been established and both water and oil movement has practically ceased.

The Barnsdall company reports that it has no hesitancy in shutting in production if it becomes an economic necessity and past experience has shown that in the majority of cases the wells and leases have not been hurt by such practice.

In one instance a lease making 165 bbls. of oil per month before a shut down period made 177 bbls. per month after being again put on production, and on another lease producing 130 bbls. per month it was found that after a five months' shut down the wells made 152 bbls. the first month and 138 bbls. the second month after being again produced.

Other leases were making 130 bbls. when shut down and after a four months' period reopened and made 220 bbls. the first month and then settled down to 135 bbls. on regular production. Another lease made 300 bbls. before shut and 354 bbls. when reopened.

Wells that have been prorated and therefore produced at a slower rate than they would have been produced under normal conditions have, over a long period, actually shown an improvement in potential on later tests. This is explained by assuming that the rate of production had more nearly equalled the actual capacity of the well and the water and gas energy within the producing horizon had been given more opportunity to do work in moving the oil.

The Amerada Petroleum Corp. reports that wells in the Brock, Okla., field showed improvement after a shut in period on pumping wells, while flowing wells that were pinched in also were not injured by the reduced rate of production.

In California it is reported that in one field where an enforced shut down was necessary the wells were benefited but in another the wells were injured but the details of conditions in the two fields are not known. However, this merely emphasizes the need for a careful study of all conditions for it is understood that in the California field where wells were injured by being shut in production practices were not as uniformly good as they were in the other field that was not hurt by being shut down.

Where fields are produced under a vacuum it has been found that benefits have been gained when the vacuum has been removed. Under the natural conditions pressures have had better opportunity to equalize and gas has not been drawn from the formation in advance of oil and it has therefore been able to do more work in forcing the oil into the well. It has also been noted in at least one instance that the gravity of the oil was raised about 2 degrees when the vacuum was removed from the sand.

Doherty Patents

In connection with this discussion it is interesting to note that two patents were granted Henry L. Doherty, New York City, under date of January 6, 1931, covering "Methods of Developing Oil Fields." Applications for these patents were filed July 20, 1925, and August 1, 1925, respectively and they are now issued under patent No. 1,787,972 and 1,787,973.

In the first patent Mr. Doherty claims in part that "while the wells are producing, there will be an area of decreased pressure in the vicinity of each well. When the wells have been producing until the pressure has fallen to a certain point it is proposed to shut in all the wells in the field and allow the rock pressure to equalize over the entire oil horizon. By shutting in the wells the pressure over the entire field will have a tendency to equalize and while this process is going on some oil will move into the area of decreased pressure which exists around the wells prior to shutting in. When, therefore, wells are again opened more oil will be available close to the well and a greater production of oil will be obtained than when they were shut in and this increased production will apply to all of the wells operating in the field. When the wells are closed in for the purpose of allowing equalization of pressure to take place some of the gas, more particularly that which exists in the vicinity of the well where the pressure is low, will be forced back into solution under the increase of pressure."

The claims allowed Mr. Doherty in these two patents are very broad and a third patent is now before the patent office for consideration. The interesting feature of this patent quoted above is that the Government has recognized the benefits of shutting in wells as set forth by Mr. Doherty and while such recognition may not mean much to the average operator it does tend to strengthen the argument advanced that wells can be shut in without great danger if good judgment is exercised in performing the operation.

Conclusions

The main point to be considered in regard to shutting in wells seems to be that of economy rather than any other for production practices have been so improved in recent years that it seems quite possible to bring back any wells that are worthy of the expense and again produce them if the price for the crude oil will justify.

It is of course a serious matter to small producers to be compelled to forego their income from a producing property, especially when such an income represents the major portion of their earnings but it is better to shut down until such time as the property can again be produced at a profit rather than to go on bringing oil out of the ground at a loss.

From the legal standpoint as affecting the right of the royalty owner, it has been stated that a precedent was estab-

lished during war times justifying legislative action, either by the legislature or by commission empowered by law, modifying the right of the royalty owner to insist upon development. In other words, in order to tide over a period of danger regulations may be made which will prevent lessors or royalty owners from forfeiting leases for the failure to drill when the drilling is clearly harmful in an ecomonic way.

On the same principle by legislative action leases may be made to continue in force when economic conditions require the temporary shutting down of wells on a property.

It is not known that this point has ever been decided by a court but there seems to be plenty of evidence to sustain this opinion based upon decisions of the highest courts in this country during extraordinary conditions arising from the war.

It may further be argued that to shut in wells now when they can make no profit is a real conservation because there seems to be every reason to believe that this period of overproduction and excess supply of oil will pass.

Under a completely shut in condition it seems reasonable to assume that gas, oil and water in a pool will tend to again establish zones of equilibrium with the gas in the upper part, the oil beneath and the water taking up the balance of the space in the formation. In other words, that oil, gas and water which has already been withdrawn from a pool will be replaced in time by water and the movement of this water into the formation will be in such a way as to force the oil and gas into the upper portions of the structure where it can later be produced either by drilling wells or by mining.

To go on producing oil without making a profit is undoubtedly poor economy and while deferred income may be serious it does seem that in many instances it is much to be preferred to an actual loss, especially when it seems from all the evidence obtainable that wells and leases can be shut down with safety if good engineering practice is followed in so doing.

NORTH AND WEST TEXAS

(Continued from Page 25)

formerly completed as gas well at total depth 1,973 feet.

COMPLETIONS IN NORTH CENTRAL TEXAS

Archer County

Burns and Long's No. 1 Turberville, oil sand 1,471-74½ feet, initial production 25 bbls., total depth 1,474½ feet. Darr and others' No. 1 Lyles, dry and abandoned, total depth 1,610 feet. Deep Oil Development Co.'s No. 1 Wilson "A", dry and abandoned, total depth 1,485 feet. Krahenbuhl, Hutchinson and Braner's No. 2 Heldebrand, dry and abandoned, total depth 1,140 feet. F. P. Hynes' No. 1 Richardson, dry and abandoned, total depth 1,351 feet.

Cooke County

Faith Oil Corp.'s No. 2 Buggs, dry and abandoned, total depth 1,424 feet.

Foard County

The Texas Company's No. 1 Johnson, dry and abandoned, total depth 4,005 feet, sand 3,296-3,308 feet, estimated 2 bbls. oil, gas 3,552-54 feet, estimated 25,000 feet of gas, gas 3,565-82 feet, tested 2,384,000 feet of gas.

Wichita County

Lyon and Mandin's No. 1 McCall, temporarily abandoned, total depth 951 feet. J. L. Swanner's No. 3 Parket, oil sand 1,252-68 feet, initial production estimated 15 bbls., total depth 1,268 feet. Deep Oil Development Co.'s No. 1 Hirche, dry and abandoned, total depth 6,002 feet. Flynn and others' No. 2 Woodward, oil sand 865-78 feet, initial production estimated 30 bbls., total depth 878 feet. John O'Neil's No. 2 Woodruff, dry and abandoned, total depth 926 feet.

Young County

Beaver and others' No. 7 Belknap Cattle Co., oil sand 693-707 feet, initial production 150 bbls., total depth 707 feet. Brazelton and others' No. 3 Belknap Cattle Co., oil sand 711-14 feet, initial production 88 bbls., total depth 714 feet. Fitzwater and Kessler's No. 1 Logan, dry and abandoned, total depth 630 feet. W. Hammon's No. 1 Jeffery, oil sand 724-50 feet, initial production 440 bbls., total depth 751 feet. W. Hammon's No. 2 Jeffery, oil sand 749-55 feet, initial production 465 bbls., total depth 755 feet. W. Hammon's No. 3 Jeffery, oil sand 727-50 feet, initial production 200 bbls., total depth 750 feet. Jacobs Oil & Gas Co.'s No. 1 Finch estate, dry and abandoned, total depth 719 feet. Lee and Brashear's No. 2 Jeffery "A", oil sand 708-27 feet, initial production 534 bbls., total depth 729½ feet. Lee and Brashear's No. 3 Jeffery, oil sand 749-55 feet, initial production 200 bbls., total depth 755 feet. D. M. Ross' No. 1 Ward, dry and abandoned, total depth 564 feet. Wheeler and Brashear's No. 1 Jeffery, dry and abandoned, total depth 880 feet.

COMPLETIONS IN PANHANDLE DISTRICT

Gray County

Interstate Production Co.'s No. 1 Frazier, top pay 2,480-2,681 feet, initial production 51,000,000 feet of gas, total depth 2,681 feet. Warner Oil Co.'s No. 1 Morse, temporarily abandoned.

COMPLETIONS IN WEST TEXAS

Coke County

Reed and Hitchins and others' No. 1 Duncan, abandoned.

Crane County

Warner-Quinlan's No. 5 Collett, dry and abandoned, total depth 3,243 feet.

Pecos County

Cosby Production & Royalty Co. and others' No. 1 J. H. Tippett, top pay 1,430-37 feet, initial production 130 bbls., total depth 1,437 feet.

Ward County

White and others' No. 1 L. H. Owenby, top pay 2,171 feet, increase 2,218-30 feet, initial production 58 bbls., total depth 2,248 feet.

Fisher County

Warner-Quinlan Co.'s No. 1 First National Bank, dry and abandoned, total depth 3,250 feet.

Jones County

Craft and Tidal Oil Co.'s No. 1 Swann, oil 2,530-34 feet, initial production 135 bbls., total depth 2,534 feet.

Urban and others' No. 1 Quinn, total depth 1,910 feet, plugged back to 1,760 feet, initial production 30 bbls. from oil sand 1,702-17 feet.

Kimble County

Kamon and Mudge Oil Co.'s No. 1 Hodges, dry and abandoned, total depth 2,901 feet.

NORTH TEXAS PRODUCTION
Week ending June 20

Panhandle District—	Bbls.
Carson County	5,360
Gray County	43,670
Hutchinson County	9,012
Moore County	681
Wheeler County	217
Total production this week	58,940
Total production last week	57,963
Increase	977
Wichita Falls District—	
Archer County	12,986
Baylor County	480
Clay County	673
Cooke County	1,867
Foard County	73
Jack County	2,052
Haskell County	22
Montague County	3,534
Throckmorton County	392
Wilbarger County	10,881
Wichita County	18,766
Young County	13,054
Total production this week	64,780
Total production last week	60,945
Increase	3,835
Ranger District—	
Brown County	3,513
Callahan County	2,278
Coleman County	1,706
Comanche County	824
Palo Pinto County	290
Eastland County	3,159
Shackelford County	3,772
Stephens County	4,377
Total production this week	19,919
Total production last week	19,548
Increase	371

WEST TEXAS PRODUCTION
Week Ending June 20

County—	No. wells	Prod.
Andrews	2	0
Crane	377	16,623
Crockett	51	1,445
Ector	78	5,993
Fisher	11	587
Garza	2	17
Howard-Glasscock	542	30,053
Irion	9	67
Jones	84	1,270
Loving	41	3,657
Mitchell	111	1,709
Pecos	547	72,018
Reagan	255	29,702
Runnels	5	85
Scurry	5	0
Upton	261	5,188
Taylor	3	101
Ward	63	3,234
Winkler	595	43,364
Total production this week		215,113
Total production last week		210,024
Increase		5,089

SHIPMENTS THROUGH TRUNK LINES

Company, size, location—	Bbls.
Atlantic, 10-in., Houston	none
Gulf, 10-in., Ranger	29,509
Humble, 2-8-in., San Angelo	20,330
Humble, 10-12-in., Comyn	42,882
Illinois, 2-8-in., Del Rio	26,310
Magnolia, 8-in., DeLeon	19,113
Pasotex, 8-in., El Paso	10,701
Shell, 10-in., Healdton	28,179
Shell, 10-in., Houston	30,712
Texas, 12-in., Houston	22,563
Total	230,299

SHIPMENTS TO REFINERIES

	Bbls.
Big Spring Ref. Co., Big Spring	869
Burford Ref. Co., Pecos	2,482
Cosden Ref. Co., Big Spring	7,499
Col-Tex Ref. Co., Colorado	8,492
Humble O. & R. Co., McCamey	3,149
Great Western Ref. Co., Big Spring	2,433
Wickett Ref. Co., Wickett	500
Total	25,424

TANK CAR SHIPMENTS

	Bbls.
Shell Pet. Corp. from McCamey	250
Big Lake from Texon	3,000
South. C. O. P. Co. from Wickett	9,151
Total	12,401
Total daily average production	254,481
Total daily average distribution	268,124
Daily average from storage	13,193

CHAMPLIN POSTS BOND WILL PRODUCE WELLS

Champlin Oil & Refining Co. has posted its $200,000 bond in the federal court and will open its producing wells in the Oklahoma City Field immediately to run a maximum of 10,000 bbls. daily from its four wells, as allowed under the federal court ruling at Guthrie last week. The State Corporation Commission was restrained from enforcing penalties assessed for alleged overproduction by the company.

The posting of a bond was required by the court to protect adjoining leaseholders in the event of drainage pending a decision by the United States Supreme Court on the validity of the Oklahoma conservation law. Hearing on a permanent injunction will be held in the federal court June 29 and it was believed the Champlin Oil & Refining Co. would postpone the opening of its wells until after that date.

USE VEGETABLE OILS IN DIESEL ENGINES

Vegetable oils are an excellent fuel for some Diesel engines, according to the Society of Automotive Engineers. Their use necessitates no change in the compression ratio but only an easily made adjustment in the fuel valve-timing during the starting period. Starting is said to be smooth, operation regular, the thermal efficiency and fuel consumption as good or slightly better than with petroleum oils. There is virtually no fouling of the combustion chamber. French automotive engineers have also carried out a number of experiments operating both two and six-cylinder engines on four kinds of vegetable oils with good results.

ENCOURAGING CRUDE PRICE REVISIONS

(Continued from Page 24)

cordance with the allowable quantities set by the California state-wide curtailment committee. This is important because it is generally admitted that the new price structures cannot possibly be maintained unless crude oil curtailment is effective and production reduced to economic requirements. The Richfield Oil Co. is not expected to post a new price schedule for crude oil as it still has in effect a co-operative marketing agreement whereby it refines and markets crude and refined products and returns to the producers the average netback less a normal handling charge for refining and distribution purposes. Herbert R. Macmillan, president of the California Oil and Gas Association and vice president of the Macmillan Petroleum Co., has lined up 16 independent refiners in an effort to effect stabilization and as a move to guarantee these refiners sufficient crude oil for normal operations. Macmillan is endeavoring to secure a working agreement with the recently organized Oil Producers Sales Agency in order that an equitable allocation of crude oil may be made to independent refiners.

Gov. James Rolph, Jr., has vetoed Assembly Bill No. 1,444 which abolished the office of state oil and gas supervisor and provided for a further reorganization of the division of oil and gas. The governor is also reported to be in favor of calling a special election in connection with the Sharkey compulsory curtailment bill if the reapportionment bill, another measure of vital importance to southern California, is rendered inoperative by a referendum movement now under way.

Magnolia Adopts Flat Prices in All Fields in Mid-Continent Area

The Magnolia Petroleum Co. sprang a surprise on the Mid-Continent oil industry on June 20 when it announced a flat scale of prices in fields in Kansas, Oklahoma, Texas, Louisiana and Arkansas in which it had previously purchased oil on a gravity basis. The Magnolia's new prices follow:

Kansas—	
Augusta	$.30
Oklahoma—	
Cushing	.36
Yale	.36
Oklahoma City	.36
Morrison	.36
Wewoka	.36
Seminole	.36
Cement	.32
Duncan	.32
Walters	.32
Hewitt	.28
Graham	.28
Healdton	.26
Texas—	
East Texas	.20
Burkburnett	.35
Archer County	.35
Stephens County	.35
Henrietta	.35
Electra	.35
Comanche	.35
Olden	.35
Thrall	.35
Mexia	.34
Wortham	.34
Corsicana, light	.34
Panola County	.34
Lytton Springs	.34
Gray County	.30
Carson County	.26
Hutchinson County	.26
North Louisiana—	
Bull Bayou	.36
Haynesville	.37
Pine Island	.32
Cotton Valley	.25
Arkansas—	
El Dorado	.25
Rainbow	.25

The Magnolia Petroleum Co. also posts in Darst Creek, Glasscock County, Luling, Mirando, Crane and Upton Counties and Winkler County, Texas, but it did not change the prices made effective June 3 in those fields. Neither did it make a price change in Smackover, Ark. The new prices puts the company on a flat price basis in all the fields in which it posts prices.

If anything the new prices are a little higher than the company paid under a gravity basis. In Oklahoma the weighted average gravity of crude oil is said to have dropped to 36-36.9 degrees which would make the average price paid in the State 33 cents. Thirty-seven gravity crude sells for 34 cents. In the fields in which the Magnolia posts a 35 and a 36-cent price under its flat schedule the gravity prices would perhaps run 1 cent a barrel less under the gravity schedule. In the East Texas area where the Magnolia company pays 20 cents per barrel under its new price list, oil is selling in large volume at prices much less than 20 cents, and it is said that one large buyer is getting all it requires for 11 cents per barrel.

Reputation

Twenty, thirty — even forty years of continuous service furnish the foundation of Ludlow's international reputation.

Eight million valves and hydrants by merit of superior performance have established the fact that no possible difference in first cost can over-balance the perpetual economy of quality.

The TRADE LUDLOW MARK VALVE MFG. COMPANY
TROY NEW YORK
MAKERS OF *DEPENDABLE* VALVES AND HYDRANTS SINCE 1866

Very Essential Information at a Nominal Price » »

Each week the pages of The Oil and Gas Journal are crammed with helpful ideas and suggestions, any one of which may make or save you many times the purchase price of $6.00 a year.

SUBSCRIBE TODAY

The OIL and GAS JOURNAL

TULSA, OKLA.

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 26)

ELLIS COUNTY

E. M. Roger's No. 1 John Lee Winn, 1,650 ft. from E and 510 ft. from S of Orland ..... Shut down 1,360 ft.; drill stem in hole.

FRANKLIN COUNTY

George L. Pace and L. B. Pruitt's No. 1 C. E. Cowan, 150 ft. out of NE cor. of 92-ac. tract and survey, Lipscomb Sur. ..... Drlg. 2,636 ft.

FREESTONE COUNTY

Raley and Clark's No. 1 McLancaster (Pampier), 150 ft. from E of W line and center of N and S line, B. Avant Sur. ..... Moving in rig.

E. L. Smith's No. 1 Emily Jackson, center of N 150 acres of 300-ac. Emily Jackson tract ..... Fishing for drill stem 3,136 ft.

GREGG COUNTY

Abernathy et al's No. 1 L. A. Rodden, 680 ft. from N and 320 ft. from E lines of Martha Dillard Sur. ..... Location.

Alco Royalty Co.'s No. 1 A. N. King, 553 ft. from E and 165 ft. from S lines of 24-ac. tract in G. A. Thomason Sur. ..... Location.

Amerada Petroleum Corp.'s No. 1 W. E. and Catie N. Bumpas, 250 ft. from S and E lines of 100-ac. tract in W. H. Castleberry Sur. ..... Location.

O. O. Alford et al's No. 1 L. M. Colburn, 208 ft. from N and 392 ft. from E of 39.7-ac. tract, Henry Hobson Sur. ..... Rig up.

Arkansas Drlg. Co.'s No. 1 S. Dodson, 150 ft. from E and 150 ft. from S of lease and survey, Allen Norris Sur. ..... Drlg. 1,900 ft.

Atlantic Prod. Co.'s No. 1 J. J. Fuller, 394 ft. from E and 343 ft. from S of 50-ac. tract and lease, Mowmery Irwin Sur. ..... Derrick.

Armstrong and Pitts' No. 1 Walker, 940 ft. from N and 1,970 ft. from E of survey, Martha Dillard Sur. ..... Derrick.

P. P. Ash et al's No. 1 A. H. Tubbs, 1,550 ft. from S and 4,120 ft. from E of survey, Dolores Sanches Sur. ..... Derrick.

Badgett and Ward's No. 1 Sample, 655 ft. S and 185 ft. W of SW cor. of A. Z. Jeffery 29.5 acres, W. P. Chisum Sur. ..... Shut down 1,300 ft. for drill pipe.

Becker et al's No. 1 J. C. Barrett, 330 ft. from S and W lines of N 100 acres of 320-ac. tract in G. W. Hooper Sur. ..... Location.

Barnsdall Oil Co.'s No. 1 Ladd Smith, 300 ft. from N and 150 ft. from W line of survey, J. S. Carrithers Sur. ..... Location.

Byrd-Frost, Inc.'s No. 1 J. R. Watson, center of 5-ac. lease, 1,500 ft. from E and 2,250 ft. from S lines of survey, J. S. Carrithers Sur. ..... Drlg. 850 ft.

M. T. Beeler's No. 1 Finley and Thomas, 150 ft. from N and 150 ft. from W of 10-ac. lease, C. H. Alexander Sur. ..... Building derrick.

Branson et al's No. 1 J. J. Fuller, 1,050 ft. from N and 170 ft. from W of survey, M. Alexander Sur. .... Derrick.

C. A. Bryan's No. 1 C. Vernon, 1,240 ft. from E and 151 ft. N of SW cor. of C. Vernon 58.75-ac. tract, W. W. Avery Sur. ..... Derrick.

Bell & Graddy's No. 1 M. George (or Daniels), 225 ft. S and 650 ft. W of 26-ac. tract, Mary Van Winkle Sur. ..... Top sand 3,554 ft.; set csg.; T. D. 3,561 ft.

B. L. Brooklin's No. 1 J. M. Tuttle, 150 ft. from N and 205 ft. from E of 12½-ac. lease, William H. Castleberry Sur. ..... Drlg. 1,790 ft.

Callahan, Thompson et al's No. 1 Fenn, 463 ft. from N and 150 ft. from E, 778 ft. from S of 44.5-ac. tract, David Ferguson Sur. ..... Set 6⅝-in. csg. 3,560 ft.; T. D. 3,566 ft.

Callahan et al's No. 2 Mollie Fenn, 450 ft. from S and 150 ft. from W lines of 44-ac. tract in D. Ferguson Sur. ..... Location.

Cherokee-Chief Oil Co.'s No. 1 Todd, 230 ft. from N and 450 ft. from E of survey, Martha Dillard Sur. ..... Top sand 3,598 ft.; T. D. 3,619 ft.

Columbia Oil & &Gas Co.'s No. 1-A Harley, 650 ft. E and 300 ft. S of SE cor. of Laura Walker 45-ac. tract, William Robinson Sur. ..... Derrick.

Continental Oil Co.'s No. 1 J. J. Flewellen, 359 ft. from N and 949 ft. from E of 200-ac. lease, Marshall Mann Sur. ..... Location.

Cranfill & Reynolds' No. 1 Mellie Fenn, 210 ft. from E and 500 ft. from S of 28-ac. tract, Haden Edwards Sur. ..... Set 6⅝-in. csg.; T. D. 3,595 ft.

Tom David et al's No. 1 W. S. Pryor, 200 ft. from S and 200 ft. from W of 152-ac. tract, 2,600 ft. from E and 2,350 ft. from N of survey, Hamilton McNutt Sur. ..... Set 65 ft. of 10-in. csg.

Davis and Russell's No. 1 M. E. Anderson, 150 ft. from E and 75 ft. from S of 3-ac. lease in Kilgore Townsite, Mary Van Winkle Sur. ..... Shut down 3,558 ft.

Charles Davidson et al's No. 1 Paul Jones, 7,000 ft. from most southerly N line and 3,600 ft. from W, W. P. Chisum Sur. ..... Waiting on csg.; T. D. 3,649 ft.

Deep Rock Oil Co.'s No. 1 A. B. Guy, 340 ft. from E and 250 ft. from S of 50-ac. tract and lease, G. W. Hooper Sur. ..... Top sand 3,530 ft.; set csg. 3,556 ft.

Duffey-Davis and McGrede's No. 1, 1,310 ft. from N and 3,160 ft. from E of survey, Martha Dillard Sur. ..... Derrick.

Eastland Oil & Gas Co.'s No. 1 B. B. Sparks, 150 ft. from N and 150 ft. from W of E 50 acres of 100-ac. tract, Harvey R. Kirk Sur. ..... Derrick.

Empire Oil & Refining Co.'s No. 1 Otto Lockhart, 150 ft. from E and 150 ft. from S of 75-ac. lease, F. W. Warraner Sur. ..... Drlg. 3,420 ft.

Dr. J. C. Falvey et al's No. 1 fee, 150 ft. from S and 150 ft. from W of 58-ac. tract, Marshall Mann Sur. ..... Rig up.

Greer's No. 1 L. M. Colburn, 150 ft. from E and 150 ft. from S of 45-ac. lease, 5,700 ft. from E and 350 ft. from N of survey, Henry Hathaway Sur. ..... Derrick.

Gulf Production Co.'s No. 1 M. T. Cole, 893 varas S and 107 varas E of NE cor. Brooks Sur., but in T. Meador Sur. ..... Location.

Gulf Production Co.'s No. 1 Willie Holt, 150 ft. from N and 1,700 ft. from E lines of John Blair Sur. .... Location.

Harper Petroleum Corp.'s No. 1 Woodley Jones, 2,000 ft. from N line and 3,900 ft. from E line of William H. Castleberry Sur. ..... Derrick.

Howard and Russell's No. 1 Stone, 150 ft. from N and 150 ft. from E of 100-ac. tract, Bailey Anderson Sur. ..... Derrick.

Houston Oil Co.'s No. 1 E. W. Clements, 300 ft. from E and 300 ft. from S of 18-ac. tract, George A. Thomason Sur. ..... Drlg. 3,050 ft.; Pecan Gap 2,484-2,900 ft.

Humble Oil & Refining Co.'s No. 1 W. W. Holland, 150 ft. from E and 336 ft. from S lines of 246-ac. tract in M. Mosley Sur. ..... Location.

Humble Oil & Refining Co.'s No. 1 H. M. Lawrence, 540 ft. from N and 219 ft. from W of 100-ac. tract, David Ferguson Sur. ..... Moving in material.
Humphrey et al's No. 1 A. Spear, 150 ft. from N and W lines of Spear tract, Mary Van Winkle Sur. ..... Drlg. 2,710 ft.
Hurburt and Brown's No. 1 L. L. Mackey, 990 ft. from E and 990 ft. from S of 269-ac. tract, 1,000 ft. from W and 990 ft. from S of survey, G. Y. Chambers Sur. ..... Drlg. 2,940 ft.
K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur. ..... Derrick.
W. R. Jones et al's No. 1 Dovie C. Satterwhite, 200 ft. from S and 180 ft. from W of 13½-ac. tract, Mowry Irwin Sur. ..... Spudding.
Kimsey-Trimble's No. 1 Griffith Davis, 922 ft. E of N line of Griffith Davis 119.5-ac. tract from NW cor. of same and 145 ft. S at right angles, W. P. Chisum Sur. ..... Shut down.
Charles Love et al's No. 1 J. B. Doby, 150 ft. from E and 150 ft. from S of S 6 acres of W 42 acres of 170-ac. tract, W. H. Castleberry Sur. ..... Derrick.
Lion Oil & Refining Co.'s No. 1 C. D. Evans, 254 ft. from N and 254 ft. from S, 250 ft. from W of 16-ac. lease, Pleasant McAnally Sur. ..... Rig up.
J. K. Livingston Oil Co.'s No. 1 D. C. Johnson, 200 ft. from N and 150 ft. from E of survey, Martha Dillard Sur. ..... Derrick.
Magnolia Petroleum Co.'s No. 1 R. L. Salter, 150 ft. from S and 150 ft. from W of 25-ac. tract, H. Edwards Sur. ..... Drlg. 1,200 ft.
Magnolia Petroleum Co.'s No. 1 O. F. Smith (A. Ramsey), 206 ft. from N and 330 ft. from E lines of 61-ac. tract in H. Edwards Sur. ..... Location.
Mid-Kansas Oil & Gas Co.'s No. 1 James Moore et al, 150 ft. from S and E lines of most southerly SE cor. of 90-ac. lease in J. Mosley Sur. ..... Location.
Overlees et al's No. 1 Mollie Fenn, 108 ft. from N and 126 ft. from W of survey, George Hampton Sur. .... Drlg. 3,375 ft.
George L. Pace et al's No. 1 W. D. Anderson, 150 ft. from N and 150 ft. from W of 13¾-ac. tract, G. W. Hooper Sur. ..... Shut down 2,179 ft.
Pelican Natural Gas Co.'s No. 1 A. Spear and R. H. Laird, 1,650 ft. from N and 147 ft. from E lines of A. Norris Sur. ..... Location.
Prairie Oil & Gas Co.'s No. 1 Isley, 536 ft. from N and 150 ft. from E of 100-ac. tract and lease, George R. Raine Sur. ..... T. D. 3,544 ft.; set 6⅝-in. csg.
Prince and Prince's No. 1 J. Worr, 630 ft. from W of NW cor. of George Hampton Sur., Haden Edwards Sur. ..... Derrick.
J. O. Perrin's No. 1 W. A. Burknight, 2,035 ft. from E and 350 ft. from S of survey, H. Edwards Sur. .... Drlg. 3,220 ft.
Petroleum Finance Corp.'s No. 1 Lacy, 300 ft. from E and 318 ft. from S of survey, Grisham Sur. .... Top sand 3,554 ft.; drlg. 3,554 ft.
Roberts Oil Co.'s No. 1 W. B. Goyne, 150 ft. from S and 150 ft. from W of 14-ac. tract, Mary Van Winkle Sur. ..... Derrick.
Ross et al's No. 1, located on Findley & Thomas 50-ac. tract, 150 ft. from S line of 6.66-ac. lease, C. H. Alexander Sur. ..... Derrick.
C. Rosenfield et al's No. 1 J. A. Knowles, 700 ft. from E, 1,250 ft. from N, William Lyles Sur. ..... Shut down.
Sabine Oil & Gas Co.'s No. 1 Harris, 3,500 ft. E and 3,500 ft. N of NE cor. of S. Lewis Sur., Mary Van Winkle Sur. ..... Drlg. 2,820 ft.; top Pecan Gap 2,540 ft.
Scheig et al's No. 1 Rube Smith, 1,100 ft. N and 200 ft. from W of tract and survey, Slaughter Sur. .... Derrick.
Sneed and Worley's No. 1 Lillie Willis, 300 ft. from E and 400 ft. from S of 13.57-ac. tract, G. W. Hooper Sur. ..... Derrick.
Seigler and McCall's No. 1 Missie Young, 330 ft. from N and 330 ft. from W of tract and survey, Carl Rhodes Sur. ..... Drlg. 2,940 ft.
Gulf Prod. Co.'s No. 1 Cole, 893 varas S along E line of Samuel Brooks Sur. from NE cor. of same, thence 107 varas E at right angles, J. Meador Sur. ..... Moving in.
Sinclair Oil & Gas Co.'s No. 1 M. T. Cole, 2,640 ft. from N and 2,742.2 ft. from W line of survey, Samuel Brooks Sur. ..... Rig up standard tools; T. D. 3,681 ft.
Sinclair Oil & Gas Co.'s No. 1 John R. Williams, 250 ft. from N and 250 ft. from W lines of 36.4-ac. tract in W. L. Wilburn Sur. ..... Location.
Stanolind Oil & Gas Co.'s No. 1 J. E. Wilhite, 330 ft. from N and 150 ft. from W of tract and lease, G. W. Hooper Sur. ..... Drlg. 2,950 ft.
Sun Oil Co.'s No. 2 G. W. Tate, 250 ft. from N and 360 ft. from W of 64-ac. tract, W. H. Castleberry Sur. ..... Drlg. 1,976 ft.
Sun Oil Co.'s No. 1 J. T. Loden, 150 ft. from S and 160 ft. from W of 100-ac. tract, Dolores Sanches Sur. ..... Drlg. 1,300 ft.
Sun Oil Co.'s No. 1 Pentecost, 150 ft. from S and 150 ft. from W of lease, Mary Scott Sur. ..... Drlg. 1,554 ft.
C. S. Thomas et al's No. 1 C. B. Everett, 300 ft. from N and 200 ft. from E of 30.25-ac. tract, John Ruddle Sur. ..... Drlg. 2,800 ft.
The Texas Company's No. 1 J. B. Bales, 330 ft. from S and 150 ft. from W of 30-ac. tract, William Carlton Sur. ..... Drlg. 3,357 ft.; top Austin 3,335 ft.
L. C. Thorpe's No. 1 J. A. Butts, 4,850 ft. S of N and 5,300 ft. E of W line of survey, Mary Van Winkle Sur. ..... Derrick.
Vacuum Oil Co.'s No. 1 R. S. White, 250 ft. from S and W lines of 82-ac. tract in D. Moore Sur. ..... Location.
Valentine Oil Co.'s No. 1 Goyne-Hughey, 6,100 ft. from S and 6,800 ft. from W of survey, Mary Van Winkle Sur. ..... Derrick.
H. M. Wages et al's No. 1 Finley and Thomas, 165 ft. from E and 150 ft. from S of 10-ac. lease, Charles H. Alexander Sur. ..... Shut down 3,200 ft.
Woodley Petroleum Co.'s No. 1 Dyers, 200 ft. from S and 200 ft. from W of 640-ac. lease, H. Hathaway Sur. ..... Derrick.
Ziegler Oil Co.'s No. 1 L. D. Campbell, 540 ft. from N and 219 ft. from E of 72½-ac. tract, David Ferguson Sur. ..... Derrick.

HENDERSON COUNTY

Westside Investment Co.'s No. 1 Thornhill, 450 varas from W and 400 varas from N line of survey, James Spivey heirs Sur. ..... Drlg. 3,475 ft.

HOPKINS COUNTY

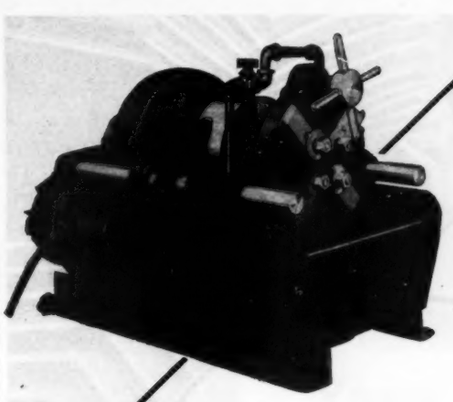
Thelma Wells' No. 1 Taylor, 220 ft. from N and W lines of 80-ac. tract in the John Polk Sur. ..... Location.

HOUSTON COUNTY

Ramsland and Ramsland's No. 1 Pennington, 750 varas W of E line and 500 varas from S line of survey on 186-ac. tract, Ramon La Garza Sur. ..... Derrick.
Phillips and Phillips' No. 1 Kennedy Bros., 485 varas out of SW cor. of 100-ac. tract, Jose M. Procella Sur. ..... Derrick.

LAMAR COUNTY

K. O. Bundy et al's No. 1 La Gatie, 200 ft. from N and 500 ft. from E of La Gatie tract, John V. Cherry Sur. ..... Rig up.
Doyle & Jondreau's No. 1 Guest, 250 ft. S and 2,646 ft. E of 160-ac. tract, L. Roberts Sur. ..... T. D. 2,683 ft.



FIRST PRIZE

A NEW "TOLEDO" NO. 999, ½" TO 2" POWER PIPE MACHINE

THE FACTS—

—from your piping experiences may win for you a new "TOLEDO" No. 999 Power Pipe Machine, or one of the 44 other valuable prizes offered in the "TOLEDO" Good Tool Contest. Write us today for rules and information on this unique and highly educational contest.

SPONSORED BY
THE TOLEDO PIPE THREADING MACHINE COMPANY
TOLEDO, OHIO

"TOLEDO"
GOOD TOOL CONTEST

B-M-W PRODUCTS for pumping wells
The KEY to LOWER LIFTING COSTS
CORRECTLY DESIGNED •• ECONOMICALLY PRODUCED
REASONABLY PRICED

They whipped Corrosion!

"NON-KRO ADMORE Liner Barrels working fine. Some in wells as long as seventy-five days where plain tubes would last from three to five days."

So writes one major company. Here is Chromium Plating that is right! Selected tubes are highly polished prior to the plating process. Under difficult pumping conditions in Arkansas and Louisiana, NON-KRO Products last from five to ten times longer than ordinary tubes. Available in these units: B-M-W NON-KRO Seamless Steel Working Barrels, B-M-W Non-Kro ADMORE Liner Barrels or B-M-W NON-KRO Outside Tubes for ADMORE Liner Barrels.

You, too, can whip corrosion! Ask your Supply Store for these B-M-W Products and give them a fair trial—that's all.

B-M-W NON-KRO is Different—better

BRADFORD MOTOR WORKS INC.
OIL WELL SUPPLIES
BRADFORD, PA. TULSA, OKLA.
EXPORT OFFICE—30 CHURCH ST.—NEW YORK CITY

OTTUMWA
SPEED REDUCERS

—in any size and for whatever speed reduction and power transmission duty you may require. OTTUMWA Speed Reducers are equipped with OTTUMWA Sykes fully Generated, Continuous Tooth Herringbone Gears—the finest gears it is possible to make. Perfect tooth contours, together with the inherent strength and advantage of the Continuous Tooth, make OTTUMWA Sykes Herringbone Gears the best known method of transmitting power between shafts with parallel axis.

OTTUMWA Speed Reducers are built unusually strong and rigid—the cases are heavily ribbed—special analysis steel shafts turn in frictionless bearings automatically lubricated. They are built to give long service under the severe conditions of oil field usage.

Many of your present cumbersome, power-wasting drives can be replaced to great advantage by specially designed, efficient OTTUMWA Continuous Tooth Herringbone Gear drives.

Manufacturers of oil field machinery, as well as operators, are invited to ask experienced OTTUMWA engineers to show how power can be saved and drives made more compact. Send the coupon below.

OTTUMWA can furnish you with generated Herringbone or Spur Gears in any size up to 123" diameter, 24" face.

OJ-6

OTTUMWA IRON WORKS
ESTABLISHED 1867 OTTUMWA, IOWA

Gentlemen: I would like to have:

☐ Information on how Ottumwa Continuous Tooth Herringbone Gears can add to the efficiency of our _____ Machinery. (Send blueprints of layout with loads and speeds indicated).

☐ OTTUMWA GEAR CATALOG.

Name _____

Address _____

City _____ State _____

Puritan's No. 1 George Parr, 3,000 ft. from W of Frisco Railway and 1,000 ft. from E line of R. Russell Sur. ..... Ready to spud.

LIMESTONE COUNTY

George McCamey's No. 1 B. K. Arnett, center of Blk. 13 in Casson Townsite ..... Shut down 1,720 ft.

MORRIS COUNTY

Dumas et al's No. 1 Tom Ball, 1,046 ft. from E and 248 ft. from S of 71-ac. tract, A. S. Young heirs Sur. ..... Derrick.

Harry Elliott et al's No. 1 Clayton B. Brown, 722 ft. from N and 278 ft. E of NE cor., J. S. Slaughter Sur. in the George Gyer Sur. ..... Top sand 3,176-3,267 ft.; coring 3,432 ft.

Shelby Oil Co.'s No. 1 Clayton Brown, located in Willis Coffey Sur. ..... Spudded and shut down.

NACOGDOCHES COUNTY

Benedum & Trees' No. 1 Conkwright, 150 ft. from N in center of E and W lines of A. H. Conkwright 106-ac. tract, J. A. Cherino Sur. ..... Coring 4,563 ft.

Bunte et al's No. 1 A. F. Boatman, 330 ft. from S and 150 ft. from W of 67-ac. tract, William A. Moore Sur. ..... Shut down 1,605 ft.

Burke et al's No. 1 F. R. Patterson, 6,515 varas from W and 315 varas from W line of Patterson 70-ac. tract, Joseph Las Santos Chay Sur. ..... Shut down 4,270 ft.

E. L. Chapman's No. 1 Tillford Hunt, 1,250 varas from S line and 1,468 varas from W line of survey, Stephen Strode Sur. ..... Shut down 4,160 ft.

Churchill-Armstrong's No. 1 Max W. Hart, 2,640 ft. from N line and 2,640 ft. from S of N line of survey, George Pollett Sur. ..... Derrick.

Foreman and Weller's No. 1 Norris, 60 ft. NW of E line and 430 ft. S of road in 73.5-ac. tract, Hosses T. Barbo Sur. ..... Shut down.

Foreman et al's No. 1 Robert Mattaner, NW cor. of 520-ac. tract, J. A. Cherino grant ..... Rig up.

Harwell and Scott's No. 1 R. I. Driver, 1,500 ft. from SE cor. of P. B. Ballard 125-ac. tract, 15 miles SE of Nacogdoches in Patricia De Torres Sur. ..... Coring 1,550 ft.

Joiner and Henson's No. 1 Andy Legg, 330 ft. from N and 330 ft. from W of tract, John Durst Sur. ..... Shut down 3,925 ft.

Morgan Oil Corp.'s No. 1 R. E. Burt, center of J. I. Reed 20-ac. tract, Jose Lay De La Bega Sur. ..... Drlg. 2,685 ft.

M. A. Vaughn's No. 1 Dixon Greer, in the M. G. Herrera Sur. ..... Derrick.

Paul Vitek et al's No. 1 Hayter estate, 1,000 ft. E of Laco Creek and 300 ft. S of Nacogdoches and Jacksonville Highway De Las Santos-Coy Sur. ..... Shut down 3,000 ft.

W. W. Wheeler's No. 1 I. D. Parmley, about 155 varas N of S line and about center of E line of survey, John Kirby Sur. ..... Shut down 3,780 ft.

Sequia's No. 1 Vanover, 6,072 ft. from N and 6,636 ft. from E of Alford Oliver Sur., E. Boyd E 100-ac. tract ..... Digging pit.

Big Indian Oil Co.'s No. 1 J. N. Stewart, center of 79-ac. tract in the Jose Ignacio Ybarba Sur. ..... Location.

L. E. Trout and Dison's No. 1 E. A. Blount, 150 ft. out of NW cor. of survey and tract, E. D. Williams Sur. ..... Derrick.

RAINS COUNTY

Berry and Hale's No. 1 Ownsby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. ..... Shut down 2,096 ft.

RED RIVER COUNTY

J. R. Sarland's No. 1 Bryan, 1,200 ft. SW of NE cor. of Bryan 130 acres, P. Vaughn Sur. ..... Derrick up.

Harris & Joiner's No. 1 E. Howison, 525 ft. S, 185 ft. W of 79-ac. tract, William Humphreys Sur. ..... Shut down 2,216 ft.

Pearsons et al's No. 1 J. R. Dellahunty, 600 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. ..... Shut down 560 ft.

KILGORE AREA—RUSK COUNTY

E. L. Chapman's No. 1 Oren Russell, 500 ft. W and 150 ft. S of most easterly NE cor. of Russell 30-ac. tract, J. English Sur. ..... Top sand 3,672 ft.; drill stem test; filled and flowed oil in 14 minutes; T. D. 3,677 ft.

Cox and Hamon's No. 3 D. M. Peterson, 150 ft. from N and W lines of 40-ac. tract, Isaac Ruddle Sur. .. Moving in material.

Crider and Manley's No. 1 R. A. Metley, 600 ft. from S and 1,150 ft. from W of J. T. McDaniels Sur. .... Derrick.

E. L. Chapman's No. 1 Jesse Minschew, 528 ft. from E and 1,800 ft. from S of survey, Henry B. Dance Sur. ..... Drlg. 3,093 ft.

Doctor Thompson's No. 1, 150 ft. from N and 230 ft. from W of lease and survey, Mary Cogswell Sur. ..... Drlg. 2,490 ft.

East Texas Refining Co.'s No. 1 Clara Webb, 150 ft. from N and 150 ft. from E of 15-ac. tract, Thomas Grace Sur. ..... Top sand 3,625 ft.; running tubing.

Gulf Production Co.'s No. 1 M. R. Terrell, 330 ft. S and W of NE cor. Loc. 3 or 2,300 ft. from W and 1,550 ft. from S lines of E. G. Sevier Sur. ..... Location.

Harry Elliott's No. 1 Carroll, 175 ft. from N and 200 ft. from E of 7-ac. tract, W. R. Cook Sur. ..... Location.

Humble Oil & Refining Co.'s No. 1 Barksdale, 150 ft. from N and 180 ft. from W of 76.5-ac. tract, S. P. Hollingsworth Sur. ..... Drlg. 1,723 ft.

Humble Oil & Refining Co.'s No. 1 May Day Caldwell, 2,110 ft. from N and 1,100 ft. from W of survey, T. J. Martin Sur. ..... Drlg. 2,850 ft.

Humble Oil & Refining Co.'s No. 1 First Guarantee Bank of Overton, 330 ft. from S and 330 ft. from W of 80-ac. tract and survey. ..... Drlg. 3,118 ft.; base Pecan Gap.

Humble Oil & Refining Co.'s No. 1 DeGuerin, 450 ft. from N and 300 ft. from E of 131.8-ac. tract, T. J. Martin Sur. ..... Drlg. 2,334 ft.

Humble Oil & Refining Co.'s No. 1 J. R. Box, 330 ft. from S and W lines of 125-ac. tract in T. J. Martin Sur. ..... Location.

Nat Hunter's No. 1-B Buntyn, 500 ft. from E and 200 ft. from N lines of W. W. Simms Sur. ..... Location.

Lyle and Orr's No. 1 Powers, 2,200 ft. from N and 360 ft. from E of survey, J. Womack Sur. ..... Rig up.

Magnolia Petroleum Co.'s No. 1 Florey, 150 ft. from N and E lines of tract, Peter Holmes Sur. ..... T. D. 3,668 ft.; plugged back to 3,647 ft.

Ray Martin's No. 1 Russell, 190 ft. from N and 5,050 ft. from W of survey, T. J. Martin Sur. ..... Top sand 3,734 ft.; T. D. 3,735 ft.

Moser's No. 1 Buntyn, 554 ft. from N and 325 ft. from E of survey, the most northeasterly cor. of survey, J. C. Snow Sur. ..... Spudded; shut down.

Navarro Oil Co.'s No. 1 Hindman, 350 ft. from S and 330 ft. from W of 11-ac. lease, W. W. Simms Sur. ..... Standing rigged up.

J. J. O'Hearn's No. 1 Mary Moore McMillan, 2,110 ft. from N and 600 ft. from W of survey, T. J. Martin Sur. ..... Drlg. 1,423 ft.

Mrs. Joyce Richardson, 150 ft. from N and 150 ft. from W of 10-ac. tract, Robert W. Smith Sur. ..... Derrick.

Stanolind Oil & Gas Co.'s No. 1 O'Quinn, 3,050 ft. from W and 1,900 ft. from S of survey, George Berry Sur. ..... Drlg. 2,380 ft.

Stephens and Turner's No. 1 Doctor Prickett, 150 ft. out of NE cor. tract in T. J. Roberts Sur. ..... Location.

Stroube and Black's No. 1 W. M. Jernigan, 150 ft. from S and 150 ft. from W of lease, J. C. Snow Sur. ..... Drlg. 3,668 ft.

Stanolind Oil & Gas Co.'s No. 1 Beal, 300 ft. from the S and W lines of the lease, W. P. Chisum Sur. ..... Rig up.

JOINER POOL—RUSK COUNTY

T. C. Adams' No. 1 J. E. Arnold, 150 ft. from S and W lines of 26-ac. tract in M. J. Prue Sur. ..... Location.

Alford et al's No. 1 W. L. Thrash, 1,103 ft. from N, 420 ft. from E of SE cor., B. Smith Sur. ..... Derrick.

Armstrong and Pitt's No. 1 Cooper, 2,150 ft. from W and 166 ft. from N of survey ..... Drlg. 3,310 ft.

Armstrong's No. 1 Alford, 151 ft. from S and 1,680 ft. from W of survey, T. J. Moore Sur. ..... Derrick.

Bellinger's No. 1 F. C. Warren, 400 ft. from S of most northerly S line and 900 ft. from E of most easterly E line of survey, W. G. Tuttle Sur. ..... Moving in rig.

Bullock's No. 1 Alford, 1,300 ft. from S and 150 ft. from W of survey, T. J. Moore Sur. ..... Derrick.

Bridwell's No. 1 Stone, 150 ft. from N and 150 ft. from W of lease and tract, M. J. Prue Sur. ..... Spudding.

Campbell Oil Co.'s No. 1 Compton, 600 ft. from N and W line of Simon Del Rio Sur., 1½ miles NW of Minden ..... Derrick.

Cap Rock Oil Co.'s No. 1 Burton, 1,100 ft. E of W line and 520 ft. S of N line in SE cor. of 62½-ac. tract, Juan Jose Yarbo Sur. ..... Moving in rig.

Champline and Bass' No. 1 R. G. Mason, 3,900 ft. from E and 5,600 ft. from S of survey, J. B. De Cadena Sur. ..... Rig up.

Comb's No. 1 Fox, 3,150 ft. from S and 150 ft. from E of survey, D. Carmack Sur. ..... Drlg. 3,100 ft.

Droppleman Development Co.'s No. 1 Cox, 384 ft. from N and 330 ft. from W of 20-ac. lease or survey, John Darley Sur. ..... Drlg. 3,681 ft.; base Pecan Gap 3,015 ft.; top Austin chalk 3,576 ft.

Dan Dillon et al's No. 1 W. H. Frederick (Jake), 150 ft. from E, 150 ft. from S of 50-ac. tract, Juan Ximenes Sur. ..... Derrick.

Dunnigan and Holt's No. 1 Cansler, 150 ft. N and W of SW cor. Gabe McIlroy 16.3-ac. tract in F. Cordova Sur. ..... Location.

East Texas Refining Co.'s No. 1 J. Bell, 1,250 ft. from E and 750 ft. from N of survey, S. P. Hollingsworth Sur. ..... Coring 3,742 ft.

Elsy and Tauteaham's No. 1 Deason, 1,300 ft. from W and 3,700 ft. from S of survey, Juan Ximenes Sur. ..... Shut down 2,310 ft.

Elsy Drlg. Co.'s No. 1 Frederick, 150 ft. from S and 603 ft. from W of Frederick 90-ac. tract, Juan Ximenes Sur. ..... Derrick.

Empire Oil & Refining Co.'s No. 1 Leverett, 150 ft. from S and 150 ft. from W of survey, J. C. Snow Sur. ..... Shut down 3,020 ft.

Gulf Production Co.'s No. 1 L. P. Thrash, 5,300 ft. from E and 5,800 ft. from S of survey, F. Cordova Sur. ..... Drlg. 3,719 ft.

Gulf Production Co.'s No. 1 W. L. Murphy, 150 ft. from N and W lines of 79-ac. tract in F. Cordova Sur. ..... Location.

Humble Oil & Refining Co.'s No. 1 J. W. Turner, 990 ft. from N and 330 ft. from W lines of 104.5-ac. tract in Anna Melton Sur. ..... Location.

Humble Oil & Refining Co.'s No. 1 Shaw, 3,350 ft. from W and 3,800 ft. from S of survey, F. Cordova Sur. ..... Drlg. 2,991 ft.

Humble Oil & Refining Co.'s No. 1 Jones Fuller, 330 ft. from N and 330 ft. from W of 115.66-ac. tract, J. Ellington Sur. ..... Drlg. 2,990 ft.

Humble Oil & Refining Co.'s No. 1 W. A. Mullikin, 4,200 ft. from S and 6,700 ft. from E of survey, T. J. Martin Sur. ..... Drlg. 2,580 ft.

Humble Oil & Refining Co.'s No. 1 R. T. Cameron, 3,300 ft. from S and 6,700 ft. from E of survey ..... Drlg. 3,053 ft.; top Pecan Gap 2,677 ft.

H. L. Hunt's No. 1 Smith-Wilson, 407 ft. from N and 425 ft. from W of lease, George Berry Sur. ..... Base Pecan Gap 3,073 ft.; drlg. 3,687 ft.

H. L. Hunt's No. 1 A. Holt, 162 ft. from N and 237 ft. from E of A. Holt 60-ac. tract, S. P. Hollingsworth Sur. ..... Derrick.

Jackson-Wise and Sneden, 315 ft. from E and 175 ft. from S of 40-ac. lease, M. J. Prue Sur. ..... Set 6-in. csg. 3,565 ft.

Albert Jones' No. 1 John Minnifee, 100 ft. from S and 1,000 ft. from W of survey on 70-ac. tract, T. J. Wailing Sur. ..... Drlg. 1,200 ft.

C. C. Julian's No. 1 Motley, 780 ft. from N and 1,673 ft. from W of survey, J. T. McDaniels Sur. ..... Set csg.; T. D. 191 ft.

Kimbrough et al's No. 1 Weatherby, 300 ft. from N and 300 ft. from E, Robert Martin Sur. ..... Drlg. 3,600 ft.

Lee and Young's No. 1 John Wheils, 150 ft. from N and 150 ft. from E of 15.3-ac. tract, F. Cordova Sur. ..... T. D. 3,776 ft.; sand 3,741-74 ft.; preparing to test.

Leonard Petroleum Co.'s No. 1 Sanger Bros., 390 ft. from N and 350 ft. from W of survey, J. P. Meredith Sur. ..... Drlg. 3,418 ft.

Ray Martin et al's No. 1 Russell, 600 ft. from N and 150 ft. from E lines of lease in T. J. Martin Sur. ..... Location.

Marr et al's No. 1 Lowns, 1,200 ft. from most westerly E line and 3,150 ft. from S line of survey, W. G. Tuttle Sur. ..... Derrick.

Mass and Tucker's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartimas Sur. ..... Fishing 3,300 ft.

H. C. McBride's No. 1 Sue Hale, 150 ft. from S and 150 ft. from W of Sue Hale 88-ac. tract, John Darley Sur. ..... Derrick.

McMurray's No. 1 Sam Stone, 1,700 ft. from N and 6,300 ft. from W of survey ..... Drlg. 3,572 ft.

Frank Melat's No. 1 Newton Orr, 300 ft. S of N line of 202½-ac. tract, William Tippett Sur. ..... Coring 2,750 ft.

Nat Saddler's No. 1 Ed Sparks, 350 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. ..... Shut down 1,670 ft.

Overton Refining Co.'s No. 1 Jones, 495 ft. from E and 229 ft. N of NE cor. of G. W. Eaton 74½-ac. tract, F. Cordova Sur. ..... Sand 3,748-58 ft.; preparing to test.

Pharis and Sample's No. 1 Deason, 1,558 ft. E and 155 ft. S of SE cor. of H. Brooks tract in M. J. Prue Sur. ..... Shut down 3,619 ft.

Pitts et al's No. 1 Freeman, 1,000 ft. N of S line and 1,000 ft. E of W line of 181-ac. tract, J. Watkins Sur. ..... Derrick.

Priest et al's No. 1 Mayfield, 155 ft. from N and W lines of 22-ac. lease in Daniel Clark Sur. ..... Location.

Rowe et al's No. 1 Maxwell, 855 ft. from E and 237 ft. from S of B. F. Maxwell 59-ac. tract, R. H. Pinney Sur. ..... Derrick.

Stokes et al's No. 1 Mrs. M. M. Talley, 4,100 ft. from W and 1,050 ft. from N of survey ..... Moving in rig.

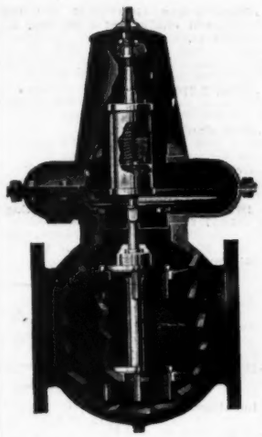
Strube-Collins-Wheelock's No. 1 F. R. Russell, 425 ft. from E and 250 ft. from S of N 35 acres of 70-ac. Russell tract, T. J. Martin Sur. ..... T. D. 3,750 ft.; waiting on csg.

Shaheen and Keeler's No. 1 H. L. Griffin, 550 ft. from W and 2,000 ft. from S of survey, Juan Ximenes Sur. ..... Derrick.

Sun Oil Co.'s No. 1 O. W. Knight, 1,350 ft. from S and 250 ft. from E of survey, D. Collins Sur. ..... Drlg. 2,680 ft.

Suttles No. 2 Holland, 154 ft. from N and 152 ft. from W of Holland 41.7-ac. tract, M. J. Prue Sur. ..... Drlg. 1,900 ft.

The Texas Company's No. 1 Pinkston, 3,100 ft. from N and 150 ft. from E of survey, J. B. De Cadena Sur. ..... Sand 3,634-39 ft.; coring 3,664 ft.



Vapor gathering systems need this automatic

Supersensitive Valve

THE Davis Supersensitive Gas Relief Valve was especially designed for vapor gathering systems. The leading producers in this and other countries are getting highly satisfactory performance with it.

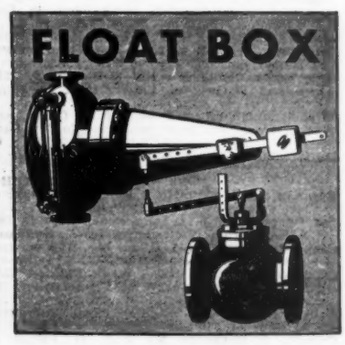
This valve allows tank vapors to pass off into the compressor suction line, and prevents the creation of a vacuum within the tank side without regard to pressure conditions in the discharge line. The body and control chamber are separated so that the action is not affected by the rate of flow.

Supersensitive action is assured by a diaphragm of exceptionally large area—a tension spring accurately balances the weight of the entire movable assembly—there are no contacting surfaces to cause frictional resistance. Internal parts are sulphur-resistant. Operating parts are enclosed by a metal hood so the valve is suitable for exposed conditions.

Write for Catalog 11, describing this and other Davis Automatic Valve Specialties.

Davis Regulator Company
2543 S. Washtenaw Avenue
CHICAGO, ILLINOIS

Westcott & Greis, Inc.
Sales Engineers
TULSA LOS ANGELES DALLAS



Automatic valve makers for over fifty years

DAVIS VALVE SPECIALTIES

OGJ 6-25 Gray

The Texas Company's No. 1 Turner, 242 ft. from S and 242 ft. from W of survey, T. H. Smith Sur. .... Drlg. 2,620 ft.
Tunstill et al's No. 1 J. Henshaw, 180 ft. from N and 180 ft. from E of 40-ac. tract and lease, Henry B. Dance Sur. .... Base Pecan Gap 3,126 ft.; top Austin chalk; set 6-in. csg. 3,765 ft.

SMITH COUNTY

Arkansas Drilling Co.'s No. 1 Wallace, 150 ft. from N and 150 ft. from E of 200-ac. tract, W. W. Avery Sur. .... Drlg. 3,210 ft.
Bailey Gaunce et al's No. 1 S. S. Cook, 150 ft. from S and 150 ft. from W of S. S. Cook 20-ac. tract in 189-ac. tract, Juan Vargus Sur. .... Shut down 2,560 ft.
Big Indian Oil Co.'s No. 1 Holland, 2,384 ft. from N and 1,446 ft. from E line of survey, Thomas Allen Sur. .... Drlg. 3,770 ft.
J. H. Brogan, trustee's No. 1 T. O. Wright, 600 ft. from N and 300 ft. from E of survey, Juan Vargus Sur. .... Drlg. 3,595 ft.; base Pecan Gap 3,127 ft.
G. B. Bunte, trustee's No. 1 A. S. Jarvis, 150 ft. from S and 150 ft. from W of 267-ac. tract, Juan Vargus Sur. .... Rig up.
Bunte et al's No. 1 Atkinson, 1,000 ft. from S line and 1,000 ft. from N line of 330-ac. tract, Calloway Dean Sur. .... Rig up.
Roy L. Carter's No. 1 T. O. Wright, 1,445 ft. from N and 182 ft. from E of survey, Juan Vargus Sur. .... Drlg. 3,150 ft.
Cotton Belt Oil Co.'s No. 1 C. S. Jackson, 500 ft. from N and 500 ft. from W of 39.88-ac. tract, Henry Mickleborough Sur. .... Derrick.
Deason Oil Co.'s No. 1 T. O. Wright, 1,440 ft. from N and 250 ft. from W of T. O. Wright 86-ac. tract, Juan Vargus Sur. .... Location.
Deering & Son's No. 1 Wright, 1,815 ft. from N and 150 ft. from E of survey, Juan Vargus Sur. .... Drlg. 2,250 ft.
Dumas' No. 1 Cooke, 1,558 ft. SE along center line of Highway No. 64 from point where S. S. Cooke 17.6-ac. tract W line intersects highway and 942 ft. at right angles to road, James Jordan Sur. .... Sand 3,705-67 ft.; top Austin 3,541 ft.; base 3,762 ft.
East Texas Refining Co.'s No. 1 Colored Methodist Church, James Jordan Sur. .... Derrick.
Hancock and McCarthey's No. 1 J. C. Cross, 200 ft. from E of road and 200 ft. N of S line of survey on a 13-ac. tract, Burbridge Sur. .... Derrick.
John Hoosier et al's No. 1 W. T. Roberts et al, 300 ft. from N and 277 ft. from W lines of 13½ acres in Juan Vargus Sur. .... Location.
H. L. Hunt's No. 1-B R. W. Fair, 250 ft. from S and E lines of 138.5-ac. tract in Juan Vargus Sur. .... Location.
H. L. Hunt's No. 3 Fair, 150 ft. from W and 4,500 ft. from S of survey, Richard McAlnulty Sur. .... Drlg. 3,120 ft.
Imperator Oil Co.'s No. 1 L. M. Green, 140 ft. from S and 165 ft. from E line of Green 86.5-ac. tract, NW of Overton and N and a little E of Big Indian No. 1 Holland .... Shut down 1,750 ft.
Joiner et al's No. 1 W. W. Wright, 847.5 varas from E and 647 varas from S of NW Wright 236-ac. tract, Van Bickle Sur. .... Shut down 4,210 ft.
Lawrence E. Ketch's No. 1 T. O. Wright, 700 ft. from E and 750 ft. from N of survey, Juan Vargus Sur. .... Rig up.
Magnolia Petroleum Co.'s No. 3 J. R. Wright, 812 ft. from N and 2,050 ft. from E of survey, Juan Vargus Sur. .... Moving in rig.
Magnolia Petroleum Co.'s No. 4 J. R. Wright, 1,458 ft. from N and 250 ft. from E of 87.9-ac. tract or lease, Juan Vargus Sur. .... Location.
Magnolia Petroleum Co.'s No. 2 Loosier, 288 ft. E and 300 ft. N of NW cor. R. L. Henson 54-ac. tract in Juan Vargus Sur. .... Location.
Magnolia Petroleum Co.'s No. 4 Loosier, 175 ft. from S and E lines of 127.7-ac. tract in Juan Vargus Sur. .... Location.
McCarthey and Hancock's No. 1 Nellie Taylor, 250 ft. out of SW cor. of 73-ac. Taylor tract, F. M. Taylor Sur. .... Derrick.
McMillan's No. 1 Wright, 794 ft. from N and 171 ft. from W of T. C. Wright 86-ac. tract, Juan Vargus Sur. .... Derrick.
Morrison's No. 1 I. Roy, 330 ft. N and E from SW cor. of 87-ac. tract in Henry Coois Sur. .... Shut down 3,350 ft.
M. M. Rowand et al's No. 1 Gibbons, 1,800 varas from W and 260 varas S of river (which is N line of survey), J. M. Garcia Sur. .... Shut down 1,860 ft.
Ruffin and Williams' No. 1 Hamp Florence, 700 ft. from N and 200 ft. from E of 192.5-ac. tract, Barnes Clark Sur. .... Coring 3,965 ft.
Sinclair Oil & Gas Co.'s No. 1 Mayfield, 2,194 ft. from N and 3,625 ft. from W of 376-ac. Mayfield lease, James Jordan Sur. .... Derrick.
Sinclair Oil & Gas Co.'s No. 2-B Jarvis, 250 ft. from E and 300 ft. from S of Jarvis B lease, Juan Vargus Sur. .... Set 12½-in. csg. 227 ft.
Sinclair Oil & Gas Co.'s No. 2-A Jarvis, 275 ft. from E and 203 ft. from S lines of Jarvis "A" lease in Juan Vargus Sur. .... Location.
Sun Oil Co.'s No. 1-B Ritch, 300 ft. from N and 231 ft. from W lines of 54-ac. tract in Juan Vargus Sur. .... Location.
Sun Oil Co.'s No. 1 J. A. Layne, 330 ft. from N and 330 ft. from E of 103.7-ac. tract or survey, Samuel Dexter Sur. .... Rig up.
The Texas Company's No. 3 Blackwell, 330 ft. from S and E lines of 100-ac. tract in James Jordan Sur. .... Location.
Mrs. S. O. Thompson's No. 1 S. S. Cooke, center of 5-ac. tract and lease in James Jordan Sur. .... Location.

TITUS COUNTY

H. V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. .... Moving in rig.

UPSHUR COUNTY

Brennan and Wood's No. 1 Robertson, center of Robertson 41-ac. tract, Ira Stephenson Sur. .... Shut down 3,709 ft.
Joe Burnham's No. 1 Lena Beck, 4,000 ft. from S and 1,200 ft. from W of survey, H. W. Augustine Sur. .... Shut down 3,464 ft.
Cockrell et al's No. 1 C. A. Lee, 150 ft. from S and 150 ft. E of 26½-ac. tract, W. L. Palmer Sur. .... Shut down.
Clark and Cowden's No. 1 A. O. Phillips, 250 ft. from S and 350 ft. from W of 110-ac. tract, David Ferguson Sur. .... Drlg. 3,004 ft.
Callahan et al's No. 1 Lee R. Kay, 660 ft. from N and E lines of Charles O'Neal Sur. .... Location.
Cranfill & Reynolds' No. 2 A. D. Porter, 930 ft. S and 450 ft. E of NW cor. 13½-ac. tract in G. W. Hooper Sur. .... Location.
Daniel and Hargrove's No. 1 Ann Callahan, 150 ft. from E and 150 ft. from S of 38-ac. tract, E. A. J. Evans Sur. .... Set surface csg.
Decker et al's No. 1 T. A. Webb, 150 ft. from N and 150 ft. from W of 34.25-ac. tract and lease, G. H. Hooper Sur. .... Washing at 3,732 ft.
Dumas et al's No. 1 A. O. Phillips, 150 ft. from N and 150 ft. from E of W 35.3-ac. of 75-ac. tract, S. Harrell Sur. .... Spudding.
A. H. Farver et al's No. 1 J. W. Free, 1,000 ft. N of SE cor. A. D. Porter tract and 463 ft. E at right angles, G. W. Hooper Sur. .... Derrick.
Home Oil Co.'s No. 1 F. D. Futrell, 150 ft. out of SW cor. and 520 ft. from E and 400 ft. from S line of 7.6-ac. tract, A. Lumbrara Sur., south of Gilmer .... Shut down 2,400 ft.
Humble Oil & Refining Co.'s No. 1 A. O. Phillips, 258 ft. from N and 195 ft. from W of 25-ac. tract, S. Harrell Sur. .... Drlg. 3,580 ft.
Magnolia Petroleum Co.'s No. 3 Howard Hampton, 215 ft. from NW and 215 ft. from SW of 169-ac. lease, David Ferguson Sur. .... Drlg. 2,860 ft.; top Pecan Gap 2,545 ft.
McMahon and McCullough's No. 1 E. H. Hamilton, 200 ft. from E and 150 ft. from S of 38-ac. tract, M. Chandler Sur. .... Derrick.
McPhail and Smith's No. 1 Kay, 660 ft. from S and 660 ft. from W line of J. Elliott Sur., 1½ miles S of Big Sandy .... Shut down 3,500 ft.
G. P. Mitcham's No. 1 J. B. Bland, 165 ft. from E and 650 ft. from S of 62½-ac. tract and 15-ac. lease, G. W. Hooper Sur. .... Derrick.
W. H. Peckham et al's No. 1 J. L. Bland, center of W half of S 30 acres of 62½-ac. tract, G. W. Hooper Sur. .... Set 12½-in. csg. 121 ft.
Sorrels & Duffey's No. 1 J. W. Wooden, 200 ft. from E and 200 ft. S of survey, Isham Williams Sur. .... Shut down 100 ft.
Sun Oil Co.'s No. 1 Vida Lee Loden, 290 ft. from N and 290 ft. from S and 150 ft. from W lines of 27.3-ac. tract in G. W. Hooper Sur. .... Location.
A. A. Trammell's No. 1 O. M. Victory, 150 ft. from E and 150 ft. from S of SW 100 acres of survey, E. A. J. Evans Sur. .... Shut down 3,277 ft.
Feasel & Curtis et al's No. 1 W. M. Phillips, 300 ft. from E and 300 ft. from S of 67½-ac. tract and lease, H. Edwards Sur. .... Drlg. 2,850 ft.; top Pecan Gap 2,450 ft.
R. M. Weaver, Jr. et al's No. 1 L. J. Everett, 330 ft. from E and 330 ft. from S of 173-ac. tract, W. Goodwin Sur. .... Drlg. 3,612 ft.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 600 ft. out of NE cor. of Hubbard 225-ac. tract, 3½ miles S of Canton, M. J. Cadena Sur. .... Spudded and shut down.
Hart Petroleum Corp.'s No. 1 M. L. Cox, 1,785 ft. N of S line and 624 ft. E of W line of Cox 300-ac. tract in Nugent Headright Sur. .... Drlg. 1,848 ft.
H. Holms et al's No. 1 Bogue, 647 ft. W and 155 ft. S of SE cor. of J. M. Brown 70-ac. in Marshall University Sur., SE of Van .... Shut down 3,095 ft.
Joiner et al's No. 1 J. S. Meeks, 330 ft. out of the NE cor. of the 330-ac. tract, A. Ducher Sur. .... Shut down 2,530 ft.; top Pecan Gap 2,380 ft.
Humble Oil & Refining Co.'s No. 1 L. A. Dowdle, 1,027 ft. N of S line and 150 ft. E of W line, William Daniel Sur. .... Temp. abnd. 2,987 ft.
Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. .... Shut down 2,300 ft.
Neil McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. .... Shut down 2,450 ft.
W. P. Palmer et al's No. 2 W. P. Forster, 600 ft. from N and 450 ft. from E of SW cor. of Forster 151-ac. tract in the F. Montgomery Sur. .... Shut down 3,000 ft.
W. A. Phillips et al's No. 1 Morris, 1,050 ft. S of N line and 350 ft. W of E line of center west of Morris 160-ac. tract in the C. L. Morris Headright Sur. .... Waiting on drill stem.
Pure Oil Co.'s No. 1 J. C. Stewart, 150 ft. N of S line and 150 ft. W of E line of 90-ac. tract, A. McPhail Sur. .... Drlg. 400 ft.
Pure Oil Co.'s No. 7 F. B. Smith, 250 ft. E of W line and 723 ft. S of N line of lease in John W. Walling Sur. .... Ready to swab 2,938 ft.
Pure Oil Co.'s No. 2, 500 ft. N of S line and 650 ft. E of W line of lease, John Walling Sur. .... Location.
Pure Oil Co.'s No. 5 O. L. Swain, 200 ft. N of S and 200 ft. E of W line of lease, John Walling Sur. .... Location.
Pure Oil Co.'s No. 1 M. L. Gilbert .... Drlg. 2,635 ft.
Pure Oil Co.'s No. 5 O. L. Swain .... Running derrick.
Pure Oil Co.'s No. 2 W. F. Swain .... Derrick standing.
Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. .... Shut down 2,530 ft.

WOOD COUNTY

Loche & Clark's No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. .... Shut down 2,008 ft.
Deep Rock Oil Co.'s No. 1 Maud Smith, center of Maud Smith S 40-ac. tract, L. Johnson Sur. .... Fishing 3,887 ft.
Main Holding Co. and Thelma Wells' No. 1 Stewart, 1,938 ft. from NE and 2,898 ft. from E line of survey, E. Rehorse Sur. .... Spudded and shut down.
Vitek Oil Co.'s No. 1 Rosa Bogel, 250 ft. from N and 500 ft. from W of survey, Sarah English Sur. .... Spudded; shut down.
M. O. Walmer Oil Co.'s No. 1 J. A. Ivey, center of 57-ac. tract, 2 miles NE of Mineola, A. Hamilton Sur. .. Drlg. 2,983 ft.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 25)

EL PASO COUNTY

Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 254, S.P. No. 7,247 .... Drlg. 325 ft.; show gas 795 ft.

FISHER COUNTY

Stanolind Oil & Gas Co.'s No. 2 Steele, 1,200 ft. E and 330 ft. N of SW cor. Sec. 210, B.B.B.&C. Sur. .... Top lime 1,600 ft.; good show oil 3,188-90 ft.; to drill in.
The Texas Company's No. 1 Jean, 330 ft. from E and 400 ft. S of Sec. 201, Blk. 1, B.B.B.&C. Sur. .... Drlg. 2,690 ft.

GAINES COUNTY

Landreth Prod. Co.'s No. 1 Alley, 660 ft. from N and W of Sec. 2, Blk. A-30, P.S.L. Sur. .... Rainbow show oil 2,965-75 and 3,030-45 ft.; total depth 3,815 ft.; fishing baller.
Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE Sec. 4, Blk. A-8, P.S.L. Sur. .... Shut down 4,215 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. .... Spudded and shut down.
Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) .... Drlg. 3,150 ft.

HOWARD COUNTY

Continental Oil Co.'s No. 1 Brindley, 660 ft. from S and E of Sec. 18, Blk. 33, Twp. 1s, T.&P. Sur. .... Total depth 3,590 ft.; plugged back to 3,200 ft.; shot 90 qts. 3,149-85 ft.; est. 50-bbl. pumper.
Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur. .. Spudded and shut down.

HUDSPETH COUNTY

Henshaw's No. 1 Love, C NE Sec. 9, Blk. 67½, P.S.L. Sur. .... Drlg. 502 ft.
Patillo & Welch's No. 1 Briggs, 300 ft. from S and W Sec. 13, Blk. 73, Twp. 7, T.&P. Sur. .... Shut down 630 ft.
Theison's No. 1 University, 3,050 ft. from S and 2,225 ft. from E of Sec. 17, Blk. E .... Spudded 35 ft. and shut down.

IRION COUNTY

Davis et al's No. 1 Suggs, 1,560 ft. from S and 925 ft. from W Sec. 3,031, Blk. 28, H.&T.C. Sur. .... Drlg. 1,482 ft.

Denny & Andrews' No. 1-A Tankersley, 200 ft. from S and 2,000 ft. from E of Sec. 709, J. P. Imhoff Sur. .. Location.
Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... 300 ft. oil in hole from 4,155-62 ft.; fishing baller 5,950 ft.
Fox's No. 1 Horney, 1,520 ft. from N and 1,525 ft. from W Sec. 2, Blk. 3, H.&T.C. Sur. ..... Shut down 1,503 ft.
Straughn & Texannati Oil Co.'s No. 1 Tankersley, 150 ft. from S and 750 ft. from W of Sec. 4, Gonzales County School Land ..... Plugged back to 1,233 ft.; total depth 1,506 ft.
Straughn & Adkins Bros.' No. 1 Lee, 1,080 ft. from W and 420 ft. from N of Sec. 729, C. Kaiser Sur. ..... Machine.

JONES COUNTY

Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 43.4-acre tract in G. Martinez Sur. ..... Shut down 1,140 ft.
Barney & Duffy's No. 2 King, 3,700 ft. from N and 200 ft. from E, Subd. No. 18, M. Bueno Sur. ..... Material on ground.
Union Oil Co.'s No. 2 King, 4,100 ft. from N and 200 ft. from E, Subd. 18, Bueno Sur. ..... Drlg. 1,450 ft.
Young & McNeill's No. 1 L. R. Cade, 150 ft. from N and 450 ft. E of NW cor. of J. A. Williams 200-acre tract in Sec. 17, but in Sec. 12, Blk. 19, T.&P. Sur. ..... Shut down 2,590 ft.

LOVING COUNTY

Adams et al's No. 1 Wichmann, 330 ft. from NE and 2,310 ft. from SE of Sec. 84, Blk. 1, W.&N.W. Sur.... Drlg. 1,775 ft.
Ervin & Mahres' No. 1 Thrope, 2,310 ft. from E and 330 ft. from S Sec. 46, Blk. 53, T.&P. Sur. ..... Shut down 810 ft.
Ervin & Mahres' No. 1 Meyer, 990 ft. NE and 330 ft. SE of Sec. 3, Blk. 2, W.&N.W. Sur. ..... Location.
Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW Sec. 79, Blk. 33, H.&T.C. Sur. ..... Shut down 1,465 ft.
Hoffman et al's No. 2 Ramsey et al, 2,310 ft. from NE and 330 ft. from SE Sec. 33 ..... Drlg. 4,040 ft.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 4,050 ft.
Martin et al's No. 2 Ramsey, 990 ft. from SE and 2,310 ft. from SW Sec. 83, Blk. 1, W.&N.W. Sur. ..... Drlg. 1,125 ft.
Richmond Drlg. Co.'s No. 1 Russell, 990 ft. from NE and 330 ft. from NW Sec. 80, Blk. 31, W.&N.W. Sur. .. Drlg. 4,245 ft.
Rush et al's No. 1 Wheat, 330 ft. from NW and SW Sec. 77, Blk. 1, W.&N.W. Sur. ..... Cellar.
Slagel Drlg. Co.'s No. 1 Cartwright et al, 2,310 ft. from S and 990 ft. from W Sec. 1, Blk. 57, Twp. 1, T.&P. Sur. ..... Total depth 3,182 ft.; top pay 3,175-80 ft.; plugging back again.
W. A. Suddreth et al's No. 1 Capitola Pool, 2,970 ft. from NE and 990 ft. from NW Sec. 73, Blk. 33, H.&T.C. Sur. ..... Elev. 2,644 ft.; drlg. 433 ft.
Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur. ..... Shut down 1,400 ft.
California Co.'s No. 3 Allen, 2,191 ft. from NW and 2,182 ft. from SW Sec. 90, Blk. 1, W.&N.W. Sur. ..... Drlg. 4,172 ft.
California Co.'s No. 4 Allen, 3,121 ft. from NW and 3,113 ft. from SW Sec. 90, Blk. 1 ..... Top salt 855 ft.; coring sand 4,342 ft.

MENARD COUNTY

Priest's No. 1 Sorrell, 1,000 ft. from E and 200 ft. from S cor. Sec. 132, E.L.&R.R. Sur. ..... Shut down 2,860 ft.

PECOS COUNTY

Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur. ..... Location.
Honolulu Oil Co.'s No. 1 Webb, 3,140 ft. from N and 1,000 ft. from W of Sec. 105, Blk. OW, G.C.&S.F. Sur... Total depth 1,713 ft.; crooked hole.
J. R. Miller et al's No. 1 Bennett, 359 ft. W of CWL Sec. 1, Blk. 119, G.C.&S.F. Sur. ..... Shut down 2,283 ft. for casing.
Perren Oil Co.'s No. 2 Eaton, S of E Sec. 27, Blk. 3, H.&T.C. Sur. ..... Fishing 1,765 ft.
Pure Oil Co.'s No. 1 Harrison, 2,310 ft. from N and 330 ft. from W of Sec. 203, Blk. 3, T.&P. Sur. ..... Shut down 5,000 ft.
Whitaker et al's No. 1 Mary Devlin, 150 ft. from N and 150 ft. from E Sec. 69, F. Hernandez Sur. ..... Shut down 430 ft.

REEVES COUNTY

R. T. Hansford's No. 1 Williams, 150 ft. from S and W Sec. 17, Blk. 6, H.&G.N. Sur. ..... Shut down 580 ft.
Humble Oil & Ref. Co.'s No. 1 Bolmorhea Livestock Co., 1,320 ft. from N and 1,320 ft. from W Sec. 33, Blk. 5, H.&G.N. Sur. ..... Drlg. 1,340 ft.; set 12½-in. casing at 1,298 ft.
Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10. T.&P. Sur.... Drlg. 4,715 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 519 ..... Shut down 2,335 ft.; cleaning out.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Fishing pipe 2,522 ft.
Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Top pay 4,000 ft.; shut down 4,006 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,053 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Drlg. 5,095 ft.
Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W Sec. 68, Blk. 3, H.&G.N. Sur. ..... Spudded and shut down.
Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 153, Blk. 97, H.&T.C. Sur. ..... Shut down 3,390 ft.
Simon & Brock et al's No. 1 Cruse, 2,310 ft. from S and E Sec. 119, Blk. 97, H.&T.C. Sur. ..... Drlg. 1,262 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T. Sur. ..... Shut down 2,669 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.
Miller Bros.' No. 1 Allison & Burke, C NW cor. Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S Sec. 26, Blk. 161, G.C.&S.F. Sur... Shut down 6,120 ft.
Jones et al's No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur. ..... Top lime 1,690 ft.; Drlg. 2,192 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Norsworthy, 2,640 ft. from S and 587 ft. from E of John McNeese Sur. ..... Shut down 760 ft.; show oil and gas 725 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur..... Shut down 1,994 ft.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2 ..... Shut down 200 ft.

UPTON COUNTY

Mintex Oil Co.'s No. 1 Lane, 2,310 ft. from N and 1,650 ft. from W Sec. 36, Blk. 1, M.-K.-T. Sur. ..... Shut down 2,134 ft.
Rankin et al's No. 1 Cordova Union Land, 660 ft. from N and E Sec. 6, G.C.&S.F. Sur., 1¼ miles S of Rankin ..... Spudding.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 16, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,420 ft.
O. O. Owens' No. 1 Mills, Sec. 126, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Shut down 6,780 ft.

WARD COUNTY

Bradford et al's No. 1 Carson, 990 ft. from NE and SE Sec. 26, Blk. 5, H.&T.C. Sur. ..... Spraying 10 bbls. oil per day from 2,142 ft.; shut down 2,170 ft.
Bradford & Abell's No. 2 Boogher, 1,160 ft. from NW and 800 ft. from SW, Sec. 11, Blk. 5, H.&T.C. Sur. ... Shut down 450 ft.
Bradford's No. 1 York, 330 ft. from NE and SE of Sec. 10, Blk. 34, H.&T.C. Sur. ..... Drlg. 515 ft.
Beckley et al's No. 1 Johnson, 4,140 ft from NE and 990 ft from SE Sec. 3, Blk. 32, H.&T.C. Sur. ..... Show gas 2,180 ft.; increase 2,197 ft.; drlg. 2,220 ft.
Buster Black's No. 1 Hall & Roberts, 990 ft. from NE and 1,650 ft. from NW Sec. 17, Blk. 32, H.&T.C. Sur... Top salt 1,535 ft.; shut down 1,685 ft.
Central Oil & Gas Co.'s No. 1 Barrow, 330 ft. from NW and 1,263 ft. from SW Sec. 55, J. W. Jackson Sur. ..... Drlg. 375 ft.
Gibson & Johnson's No. 1 Johnson, 4,140 ft. from SE and 990 ft. from NE Sec. 10, Blk. 32, H.&T.C. Sur.... Drlg. 2,405 ft.
Gulf Prod. Co.'s No. 8 Hutchins, 2,310 ft. from S and 990 ft. from W of Sec. 3, Blk. F, G.M.M.B&A. Sur. .. Drlg. 1,310 ft.
Hankinson et al's No. 1 Emery, 3,090 ft. from SE and 510 ft. from SW, Sec. 26, Blk. 5, H.&T.C. Sur. ..... Top salt 840 ft.; drlg. 1,375 ft.
Moran & Miles' No. 1 Boogher, 3,603 ft. from NE and 1,303 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 215 ft.
O'Quinn et al's No. 1 Cummins, 4,300 ft. from NE and 330 ft. from SE of Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 700 ft.
Pat Moran's No. 1 Sweatt, 1,470 ft. from SW and 150 ft. from NW Sec. 12, Blk. 5, H.&T.C. Sur. ..... Top salt 794 ft.; drlg. 1,981 ft.
Rector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 22, Blk. A, G.M.M.B.&A. Sur. ..... Top salt 940 ft.; drlg. 2,063 ft.
Shipley et al's No. 5 Hayslett, 2,490 ft. from SE and 1,980 ft. from SW Sec. 17, Bl. 5, H.&T.C. Sur. ..... Shut down 2,520 ft.; 1,500 ft. oil in hole; waiting on tubing.
Simms Oil Co.'s No. 1 Himmel, 330 ft. from NE and 2,310 ft. from SE Sec. 30, Blk. B-29, P.S.L. Sur. ..... Top pay 2,246 ft. and 2,325 ft.; drlg. 2,556 ft.
Sturm's No. 1 Jones, 330 ft. from SW and SE of Sec. 25, Blk. B-29, P.S.L. Sur. ..... Elev. 2,519 ft.; shut down 2,475 ft.
Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ..... Drlg. by tools 4,355 ft.
White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 8, Blk. 32, H.&T.C. Sur. ..... Machine.

WINKLER COUNTY

Liner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor. Sec. 2, Blk. B-5 ..... Shut down 4,640 ft.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 25)

Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur. ..... S.D. 2,770 ft; P.B. 2,430 ft. and shot with 80 qts. 2,409-30 ft.; C.O.
Magnolia Pet. Co.'s No. 1 Heaston, NE cor. S½ NE, Sec. 164, Blk. 3, I.&G.N. Sur. ..... Rig on ground.
Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. ..... S.D. 2,619 ft.
Operators Royalty & Prod. Co.'s No. 2 Vanniman, 330 ft. S and W, E½ NE, Sec. 175, Blk. 3, I.&G.N. Sur. . Drlg. cmt.; T.D. 3,208 ft; 6,000,000 ft. gas 3,150-55 ft.
Pulse-Shell Pet. Corp.'s No. 1 Simpson, SE NE, Sec. 140, Blk. 3, I.&G.N. Sur. ..... Rigging up.
Steckoll & Reiger's No. 1 Davidson, 660 ft. N and W, Sec. 64, Blk. B-3, H.&G.N. Sur. ..... Drlg. 2,467 ft.
Steckoll & Reiger's No. 1 Short, 330 ft. S and W, Sec. 17, B. E. Chaney Sur. ..... Drlg. 2,175 ft; S.G. 2,110 ft.
Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... S.D. 2,636 ft.
Tarber's No. 1 Saunders, 330 ft. N and W, Sec. 3, Blk. 1, B.S.&F. Sur. ..... Location.

HUTCHINSON COUNTY

Danciger O. & R. Co.'s No. 1 Johnson, 330 ft. N and W, SE, Sec. 34, Blk. Y, A.&B. Sur. ..... Rigging up.
Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. .... S.D. 450 ft.
Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ..... Big gas 2,330 ft. and 2,395 ft.; drlg. 3,036 ft.
Liner et al's No. 1 Johnson Bros., 990 ft. S, 330 ft. E, W½ SE, Sec. 29, Blk. Y, A.&B. Sur. ..... Spudded and S.D.
Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... S.D. 3,115 ft.
Timms-Deatch's No. 4 Moore, 330 ft. N and W, Sec. 124, Blk. 4, I.&G.N. Sur. ..... Rig.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... T.D. 5,003 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft; S.D. 4,-167 ft.

MOORE COUNTY

Cloud & Dana's No. 1 Jones, 330 ft. N and E, SW, Sec. 169, Blk. 3-T, T.&N.O. Sur. ..... Estimated 74,000,000 ft. gas; killed gas to run csg.; T.D. 3,313 ft; drlg. cmt. 3,200 ft.
Dana O. & G. Co.'s No. 1 R. Utey, 330 ft. S and W, NE, Sec. 135, Blk. 3, T.&N.O. Sur. ..... T.D. 3,525 ft; plugging back to 3,300 ft. for gas.
Interstate's No. 1 Nield, C NE, Sec. 18, Blk. 44, H.&T. C. Sur. ..... Location.
Magnolia Pet. Co.'s No. 1 Jones, 330 ft. N, 330 ft. E, Sec. 170, Blk. 3-T, T.&N.O. Sur. ..... Drlg. 1,978 ft.
Sunray Oil Co.'s No. 1 Rupert, 660 ft. N, 330 ft. E, NW, Sec. 191, Blk. 3-T, T.&N.O. Sur. ..... Cellar.
Plains Holding Co.'s No. 2 Bivins, 1,115 ft. S, 627 ft. E, Sec. 93, Blk. 46, H.&T.C. Sur. ..... 3,000,000 ft. gas 2,135 ft; T.D. 2,-550 ft; making 46,500,000 ft. gas.
Sunray Oil Co.'s No. 2 Jones, 330 ft. N and W, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.
Texas Interstate P. L. Co.'s No. 1-23 Thompson, C N½ NE, Sec. 23, Blk. 44, H.&T.C. Sur. ..... Location.
Texas Interstate P. L. Co.'s No. 1-33 Sneed, C SW, Sec. 33, Blk. 6-T, T.&N.O. Sur. ..... Rigging up rotary.
Texas Interstate P. L. Co.'s No. 1-37 Sneed, C NW, Sec. 37, Blk. 6-T, T.&N.O. Sur. ..... Location.
Texas Interstate P. L. Co.'s No. 2-55, C SE, Sec. 55, Blk. 6-T, T.&N.O. Sur. ..... Standardizing 2,100 ft.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 530 ft.

OLDHAM COUNTY

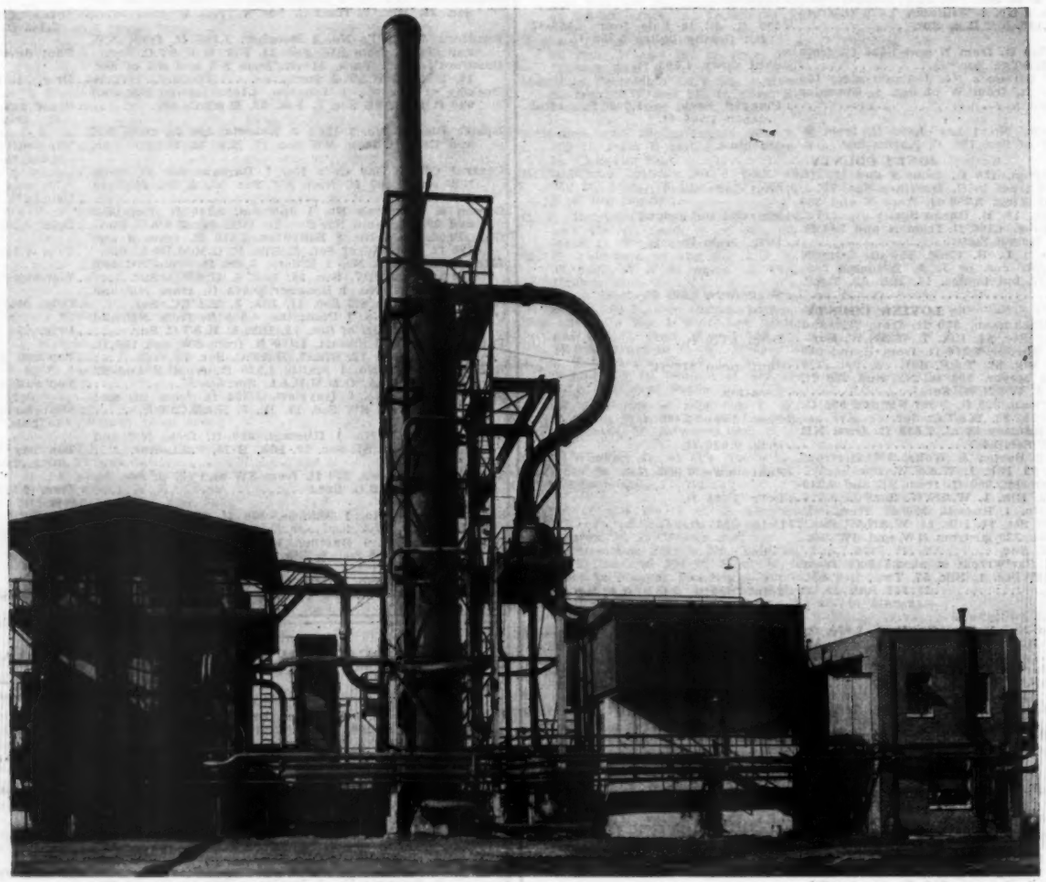
Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... S.D. 400 ft.
Chambers et al's No. 1 Herring, CNL, Sec. 20, Blk. 8, G.C.&S.F. Sur. ..... S.D. 800 ft.

ROBERTS COUNTY

Chicken Creek Oil Co.'s No. 1 Ledrick, 330 ft. N and W, Sec. 55, Blk. C, G.&M. Sur. ..... Drlg. 859 ft.
Travis et al's No. 1 Cunningham, 330 ft. S and W, Sec. 74, Blk. M-2, H.&G.N. Sur. ..... Drlg. 2,655 ft.

WHEELER COUNTY

Clarity et al's No. 1 Porter, 330 ft. S and W, SE, Sec. 2, Blk. A-9, H.&G.N. Sur. ..... Spudding.



Complete Foster Wheeler Unit

This complete Foster Wheeler distilling unit has the capacity to handle 4,000 barrels per day pressed wax distillate. The equipment includes pulverized fuel fired oil heater, air preheater, fractionating tower and heat exchangers.

Three lubricating distillate cuts are recovered. The unit provides increased yields of improved products at minimum costs.

FOSTER WHEELER CORPORATION
165 Broadway, New York, N. Y.

Branches in Principal Oil Centers

Foreign Associates: Foster Wheeler Limited, London, England.
Foster Wheeler Limited, Toronto-Montreal, Canada.
Societe Anonyme Foster Wheeler, Paris, France.

FOSTER WHEELER

Brief Items for Petroleum Refiners

Appoint Dr. Paulus Assistant Manager Of Standard Plants

Dr. Max G. Paulus, manager of the Rocky Mountain division refineries of the Standard Oil Co. of Indiana, with headquarters at Casper, Wyo., has been appointed assistant general manager of all manufacturing activities of the company and will be transferred to the general headquarters at Chicago to take up his

Max G. Paulus

new duties on July 1. In his new position, Doctor Paulus will be the immediate assistant to Dr. Gentry Cash, general manager of manufacturing, and to Dr. R. E. Humphreys, vice president in charge of all manufacturing activities of

(Continued on Page 122)

McPHERSON FAVORED AS GLOBE REFINERY SITE

McPherson, Kans., is being favored as the location of the Globe Oil & Refining Co.'s new refinery previously announced. This choice is depending somewhat upon the action of the Rock Island Railroad which has been asked to give consideration to refined oil rates from this point. Another plan is being considered but with less favor. This would call for the building of a pipe line from the Lario Oil & Gas Co. properties in the McPherson Field to the Globe refinery at Blackwell, Okla., and enlarging that plant accordingly. The refinery, if built, will have a capacity between 6,000 and 10,000 bbls. daily and will include cracking facilities.

The company is also investigating the feasibility of building a refinery in the East Texas Field. This would be a 5,000-bbl. skimming plant. No further details are available but it is understood the problem of building an East Texas plant is being considered along with the possibility of building a refinery along the Gulf Coast in conjunction with Victor Smith, formerly president of the White Oak Corp.

NEW SKIMMING PLANT

TOLEDO, Ohio, June 20.—The Peninsula Oil Co. will build a skimming plant with a capacity of 40 bbls. daily on the John P. Caughney land on Catawba Island, in Ottawa County, Ohio, to refine the production of the company for the gasoline content.

GUPECO REFINING COMPANY STARTS OPERATING ALEXANDRIA REFINERY

HOUSTON, Tex., June 19.—The Gupeco Refining Co., Inc., a recently organized company headed by T. L. Guillory, operator in the Urania Field of North Louisiana, has purchased the old Alexandria Refining Co. plant at Alexandria, La., and after a complete overhauling and some rebuilding has put it in operation. The plant now is running approximately 500 bbls. daily of Urania crude. Previously it had been shut down for several years.

Officers of the new company include Mr. Guillory, president and general manager; R. C. Bauer, vice president, and B. M. Guillory, secretary-treasurer. Tilden E. Guillory, a brother of T. L. Guillory, a refinery engineer, Houston, Tex., directed rebuilding of the plant. A new tower, a small treating plant and a five-car loading rack were among the additions to the plant.

The plant will be operated exclusively on Urania crude, moved to the refinery in tank cars from the field, 30 miles from Alexandria. This crude is primarily a lub stock, yielding from 50 to 52 per cent marketable lubricating oils. By straight distillation of the crude only Diesel oil and fuel oil with no gasoline is obtained. The plant will refine all grades of lubricants and in addition contains a complete grease compounding plant. It also is equipped to manufacture steam refined cylinder stocks.

View of plant of the Gupeco Refining Co., Inc., located at Alexandria, La. The elevated tank at right is used as gravity fuel oil feed supply for stills and boilers. The plant was formerly owned and operated by the Alexandria Refining Co.

SUN SPENDS $200,000 AT TOLEDO REFINERY

TOLEDO, Ohio, June 20.—An improvement and extension program which will involve the expenditure of about $200,000 in the next month by the Sun Oil Co., on its facilities in Toledo, was announced by H. O. Cameron, general manager of the Toledo plant. During 1928 and 1929 the company expended nearly $2,500,000 on modernizing completely its big refinery in this city at Woodville Road and the Wheeling Belt Railroad.

Since then it has established marine facilities at the former Hocking Valley docks and developed its rail sales facilities here.

Mr. Cameron announced that the new program of extensions and improvements would be supervised entirely by the company engineers and a few extra employes would probably be taken on during the period to rush the work to completion.

In recent months the refinery here has been operating up to capacity and by July 25, when the program is to be completed, it will again go into capacity production.

START TUBE AND TANK UNIT

SAN FRANCISCO, Calif., June 21.—The Associated Oil Co. has started operating its new 10,000-bbl. tube and tank cracking unit in its Avon refinery. Preliminary runs are now in progress. The work was started last November and was carried out by the E. B. Badger & Sons Co.

ALLSTATE COMPANY TO BUILD IN EAST TEXAS

FORT WORTH, Tex., June 22.—The Allstate Refining Co., which has a refinery at Thrall, Tex., has completed plans for the construction of a skimming plant at Overton in East Texas. A site has been purchased on the I.&G.N. Railroad east of Overton. The plant will have a capacity of 3,000 bbls. daily.

H. H. Coffield is president of the Allstate company. J. H. Edwards is secretary and general manager. Sales of the company are in charge of C. A. Middleton, formerly manager of the Kent-Middleton Refining Co. which operated a refinery at Corsicana, Tex.

TRAVIS BUYS PLANT

M. R. Travis and associates of Tulsa are reported to have purchased a skimming plant located at Southport (near New Orleans), La. The plant has been shut down for several years. The new owners plan to remodel the plant and operate with crude oil secured from the East Texas fields.

FORM ULTRA-PENN CO.

BUTLER, Pa., June 20.—The operation of the refinery at Butler, Pa., formerly owned by the Butler Oil Refining Co., has been taken over by the Ultra-Penn Refining Co. The company has been organized by F. C. Dodds, H. H. Phillips and H. C. Eaton. Prior to the reorganization the company was operating under a receivership.

Considerable Plant Construction Work In Mountain States

DENVER, Colo., June 22.—Considerable construction work on small refineries is reported under way in the Rocky Mountain area. The Mountain Oil Refining Co., which is being organized under the laws of Wyoming, is erecting a plant at Kemmerer, in western Wyoming, to operate on crude which will be trucked from the La Barge Field. In connection with the refinery, which is on the Overland Trail, a main highway for transcontinental travel, where it joins with a north-south highway, a service station is being erected.

C. Leonard Smith, of Denver, well known operator in Wyoming and Colorado, is president of the company. C. D. Johnson, of Denver, geologist with Petroleum Information, Inc., and J. W. Pollard, of Denver, are additional directors and owners. The plant will have a charging capacity of 1,500 bbls., but is

(Continued on Page 128)

CRACO OIL CO. TO BUILD REFINERY IN NEW MEXICO

LOS ANGELES, Calif., June 22.—The Craco Oil & Gas Co., Ltd., of which J. Milton Craven is president, has met with such success in development of oil property in the southern end of the San Juan Basin in New Mexico, that a refinery soon is to be erected in McKinley County, New Mexico, to handle the output of Craco wells.

In doing exploratory work on the Seven Lakes, Walker and Hospah Domes, the company has found what it declares is a paraffin base oil of considerable value in making lubricants. The company intends to refine the oil and sell the gasoline in New Mexico and send the lubricating product here for final treatment.

The company is developing an oil zone which was found at 1,600 feet on the Hospah structure. As soon as refinery equipment can be assembled a pipe line from the field to the refinery will be built and the company plans to begin marketing gasoline in New Mexico and Colorado.

TO START OPERATING DENISON REFINERY

DENISON, Tex., June 22.—An oil refinery here will be placed in operation the coming week by Foster & Co., running oil from an East Texas Field owned by Grayson County interests. The refinery will have a daily capacity of 800 bbls. of crude, but will be operated below this maximum at present. The gasoline will be marketed through a chain of filling stations that have been acquired in Denison and in nearby towns and cities in North Texas and southern Oklahoma. The company will start business with control of about 25 outlets.

DANCIGER PLANS REFINERY

The Danciger Oil & Refining Co., independent oil producer of the Mid-Continent with headquarters in Tulsa, is planning the construction of a skimming plant in East Texas. The location and size of the plant have not been announced. The Bell Oil & Gas Co., Tulsa, will be associated with the Danciger interests in the construction and operation of the plant.

The Danciger company, under the name of the Petroleum Refractionating Co., operates a skimming plant near Pampa, Tex. Sales of the refinery are handled by the Bell company.

Manufacture of Natural Gasoline

Developments in Use of Liquefied Gas for Cutting

Liquefied gas has taken its place alongside of acetylene as important fuels for use in the cutting torch. The history of the development of the cutting torch and the importance Calol, the product of the Standard Oil Co. of California, has played in carrying out salvaging jobs is told in the Standard Oil Bulletin in part as follows:

"In 1906 a United States patent was issued to a Belgian, Felix Jottrand, for a cutting torch; also that year another one was brought to America from France.

"Concerning the beginnings and development of this process are the following data, contributed by Vice President E. L. Mathy, of the Victor Welding Equipment Co., San Francisco, manufacturers of metal-cutting and welding equipment:

"'Reference to oxygen for metal cutting was first made by Thomas Fletcher in England in a paper prepared in 1888.

Cutting 14-inch steel armor plate with Calol, a liquefied gas, manufactured by the Standard Oil Co. of California.

In 1901 a German patent was issued to Herman Menne covering the use of oxygen for steel cutting, or, as he termed it, melting. Probably the first pieces of steel were cut in America by this new method at Cleveland in 1904; it was experimental work, not commercial.

"'The original equipment for metal cutting with oxygen and acetylene was principally a welding torch having a separate tubing that led to the torch tip and supplied the free stream of oxygen needed for metal oxidation. In the earlier development period of the process cast iron could not be cut with it. This is now accomplished, through the perfection of equipment, and it is even possible to cut under water, a not uncommon practice when salvaging sunken ships.

"'In the search of fuel gases other than acetylene, the cutting industry has utilized hydrogen, "city" (manufactured) gas, and natural gas. Probably the first large installation for metal cutting with a substitute for acetylene was made on

(Continued on Page 127)

DRY ICE PLANT

DOUGLAS, Ariz. June 20.—As a result of extending natural gas lines into this city the Paul Lime Quarries will combine the manufacture of lime and "dry ice." The flue gases will be absorbed and the carbon dioxide isolated to be compressed into the liquid and solid forms for refrigerating purposes.

LIQUEFIED GAS UNIT STABILIZES REFINERY AND NATURAL GASOLINE

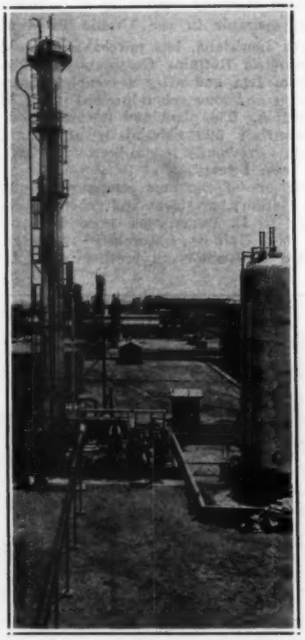
The accompanying views show the stabilization unit recently completed at the Los Angeles, Calif., refinery of the Union Oil Co. The equipment is used in the manufacture of liquid gases, a new marketing field recently entered by the Union company on the west coast.

The plant is used to stabilize not only the refinery gasolines but also the natural gasolines brought to the plant by pipe lines connecting to absorption plants located in the Los Angeles Basin fields. The stabilizing unit can handle up to 250,000 gallons of gasoline daily and operating at capacity would manufacture 35,000 gallons of liquefied gas daily.

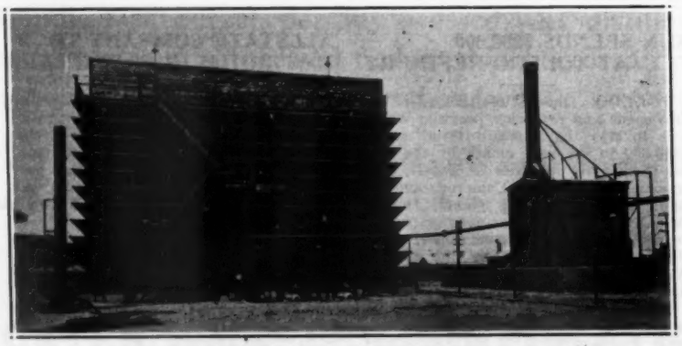
The natural gasoline is brought to the refinery in pipe lines to storage tanks at the refinery. This gasoline is pumped at a temperature of 250° to 350° F. and under 300 pounds pressure into a vertical fractionating column 48 inches in diameter and 97 feet high. The interior construction of the column consists of 50 especially designed plates spaced at equal distances through the vertical height.

In operation, the stabilized natural gasoline meeting any desired specifications is removed from the bottom of the column. The various grades of liquefied gas are removed at various points along the side of the column and the uncondensed gas from the top of the column. Control of the column operation is maintained by condensing a portion of the overhead material and introducing it into the top of the column as a reflux. High pressures on the distillation and condensing equipment is necessary in order to liquify the lighter fractions.

The liquefied gas is held in storage in pressure tanks capable of withstanding an internal pressure up to 350 pounds. The gas is taken from these tanks as needed to supply the consumer demand.



View of refinery and natural gasoline stabilizing unit at the Los Angeles, Calif., refinery of the Union Oil Co. This unit is capable of stabilizing up to 250,000 gallons of gasoline daily with a production of 35,000 gallons of liquefied gas. Two 350-pound storage tanks for liquefied gas are shown on the right.



Cooling tower and heating unit of stabilizer at Union plant.

WILL INVESTIGATE TAX PAYMENTS ON GASOLINE

Frank Carter, state auditor for Oklahoma, has asked for the records of several natural gasoline manufacturers having plants in the Seminole area for the purpose of locating instances in which the production tax has not been paid. A similar investigation is being made in connection with the shipments of crude oil.

His records disclose that in the first quarter of 1928 six companies shipped from the State 3,997 cars of crude oil on which there was, apparently no gross production tax paid, while in the same period eight companies shipped out of the State 5,570 tank cars of casinghead gasoline on which there is no record of the gasoline tax being paid.

MILLER ON A.P.I. COMMITTEE

Ray Miller, secretary of the Natural Gasoline Association of America, has been appointed on the committee for accident prevention under the American Petroleum Institute's division of refining. Mr. Miller has had considerable experience in this work, having directed the first aid work of the Mid-Continent Oil and Gas Association prior to his secretaryship in the association.

Consider Reduction In Royalty Payment For Producer Gas

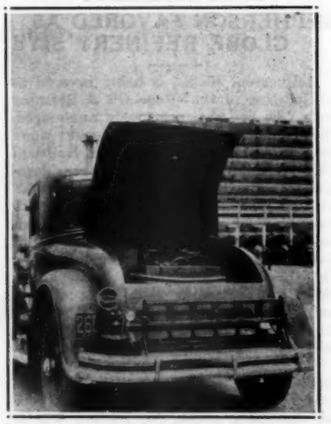
FORT WORTH, Tex., June 22—Natural gasoline manufacturers operating plants in the Mid-Continent area are generally investigating a plan to lower the royalty payments to the producers on the wet gas processed through these plants. Under the present plan the producer receives a credit equal to one-third of the sales price received for the finished gasoline. The retail market price has slumped so low that it does not even cover the cost of manufacture exclusive of the cost of the gas.

One of the prncipal companies supporting the plan, the Phillips Petroleum Co., is offering to pay but one-third of the present royalty or what will be the equivalent of one-ninth the sales price on the gasoline.

The action is stated to be a temporary measure and the original royalty payments will be resumed as soon as natural gasoline Grade AA reaches 5 cents per gallon. A statement said to have been given to producers by the Phillips company follows in part: "We are not asking the oil producer to give us his gas, but since prevailing contract royalty rates have not anticipated such conditions as are at present prevailing, with the irreducible minimum cost of manufacturing gasoline totaling more than the selling price of the commodity, we feel it equitable to frankly ask for a reduction in rates."

GAS TESTING UNIT IS COMPLETELY ENCLOSED

Economy, convenience, neatness of appearance and practicability have been combined in the design of the gas testing car of Crosbie and Moran, Inc., now in use in the Seminole, Okla., area. The picture shows the standard testing unit completely included under the lid of a



standard Buick coupe. The only part not included under the cover is the sampling tank or accumulator shown on the left side behind the bumper.

This was necessary in order to give the system the required drop in elevation from the condenser. The only changes in the car itself included shifting the brake rod on one side, recessing a part of the floor in the rear to accommodate the compressor, and installing the usual power take-off and clutch to run the compressor.

After the car needs to be replaced the testing unit may be taken out and the car will command a high trade-in price.

BUBBLE TOWERS

complete

BUBBLE DECKS

for existing tower shells

In All Sizes

For All Services

THE WINKLER-KOCH ENGINEERING COMPANY

Consulting and Construction Engineers

WICHITA, KANSAS

L. D. 232

Eastern Representative:
FRANK DeGANAHL
Grand Central Terminal Bldg.
New York City

European Representative:
A. F. CRAIG & CO., LTD.
Paisley, Scotland
London, England

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	June 23		June 16		June 9	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.02¼	.02⅜	.02⅜	.02½	.02⅝	.02⅞
56-58 450 endpoint	.02	.02¼	.02⅛	.02¼	.02¼	.02½
58-60 437 endpoint (U. S. Motor)	.02⅛	.02⅜	.02¼	.02⅜	.02⅜	.02⅝
60-62 437 endpoint	.02¼	.02⅜	.02⅜	.02⅜	.02½	.02⅝
60-62 400 endpoint	.02⅜	.02¾	.02½	.02⅝	.02⅝	.03
64-66 375 endpoint	.02⅜	.03	.02¾	.03	.03	.03¼
68-70 360 endpoint	.02⅞	.03¼	.02⅞	.03¼	.03¼	.03⅞
64-66 437 endpoint (blend)	.02	.02¼	.02⅛	.02½	.02¼	.02½
NORTH TEXAS—						
50-52 450 endpoint	.02¼	.02½	.02¼	.02½	.02½	.02¾
58-60 450 endpoint	.02	.02⅛	.02⅛		.02¼	.02⅜
58-60 437 endpoint (U. S. Motor)	.02⅛	.02½	.02⅛	.02½	.02⅜	.02⅝
60-62 400 endpoint	.02¼	.02¾	.02⅜	.02¾	.02⅝	.02¾
64-66 390 endpoint	.02½	.03	.02½	.03	.02¾	.03
64-66 375 endpoint	.02¾	.03¼	.02¾	.03¼	.02⅞	.03¼
68-70 360 endpoint	.02⅞	.03¼	.02⅞	.03¼	.03⅛	.03¼
64-66 437 endpoint (blend)	.02	.02½	.02	.02½	.02¼	.02½
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.02⅝	.02¾	.02¾	.03	.02¾	.03
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.02⅝	.02¾	.02⅝	.03	.02¾	.03
PENNSYLVANIA—						
52-54 Naphtha	.04½		.04½		.04¾	
54-56 Naphtha	.04½	.04¾	.04½		.04¾	
58-60 Gasoline	.04½	.04¾	.04¾	.04⅞	.04⅞	.05
60 Gasoline	.04¾	.05	.05		.05⅛	.05¼
62 Gasoline	.05	.05¼	.05	.05⅛	.05⅛	.05¼
64 Gasoline	.05⅛		.05⅛		.05¼	.05¾
68-70 350 endpoint gasoline	.05½		.05½	.05¾	.06	
CALIFORNIA—						
†54-58 437 endpoint (U. S. Motor) domestic	.04½	.06	.03	.03½	.03	.03½
†58-60 400 endpoint domestic gasoline	.04	.06½	.03¼	.04	.03¼	.04
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.02¼	.02½	.02⅜	.02½	.02¼	
58-60 437 endpoint (U. S. Motor)	.02⅛	.02½	.02¼	.02¾	.02⅜	.03
60-62 400 endpoint	.02½	.02¾	.02¾	.03	.02⅝	.03½
64-66 375 endpoint	.02¾	.03	.02¾	.03	.03¼	.03½
64-66 437 endpoint (blend)	.02⅛	.02¼	.02¼	.02¼	.02¼	.02¾
68-70 360 endpoint	.03	.03¼	.03⅜		.03½	
GULF COAST (Export)—						
58-60 U. S. Motor	.03½		.03½		.04	
60-62 400 endpoint	.03⅝		.03⅝		.04¼	
61-63 390 endpoint	.03¾		.03¾		.04½	
64-66 375 endpoint	.03⅞		.03¾		.04¾	

*Louisiana, Arkansas, Mississippi and East Texas delivery. †For local consumption.

NATURAL GASOLINE

	June 23		June 16		June 9	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.01⅞	.02	.01⅞	.02	.02	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.01⅝		.01⅝		.01⅝	.01¾
Grade B, 76-83.9, 375 e.p., rec. 85%	.01½		.01½		.01½	
Grade BB, 84-92, 375 e.p., rec. 85%	.01½		.01½		.01½	
Grade C, 80-92, 375 e.p., rec. 78%	.01½		.01½		.01½	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.01¾	.02	.01⅞	.02	.02	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.01⅞	.01⅝	.01⅝		.01⅝	.01¾
Grade B, 76-83.9, 375 e.p., rec. 85%	.01½		.01½		.01½	
Grade BB, 84-92, 375 e.p., rec. 85%	.01⅝	.01½	.01½		.01½	
Grade C, 80-92, 375 e.p., rec. 78%	.01⅝		.01½		.01½	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.01⅝		.01⅝		.01¾	.02
Grade BB, 84-92, 375 e.p., rec. 85%	.01½		.01⅝		.01¾	
Grade C, 80-92, 375 e.p., rec. 78%	.01½		.01⅝		.01¾	
CALIFORNIA—						
75-78 375-390 endpoint	.03	.04	.02¼	.02¾	.02	.02¾
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.01⅞	.02	.01⅞	.02	.02	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.01⅝		.01⅝		.01⅝	
Grade BB, 84-92, 375 e.p., rec. 85%	.01½		.01½		.01½	

BURNING OIL

	June 23		June 16		June 9	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.02	.02¼	.02⅛	.02½	.02¼	.02½
42-44 water white kerosene	.02⅛	.02½	.02⅝	.02¾	.02⅝	.02½
NORTH TEXAS—						
41-43 water white kerosene	.02	.02¼	.02	.02¼	.02¼	.02⅜
40-41 water white kerosene	.02		.02		.02⅛	
***NORTH LOUISIANA—**						
41-43 water white kerosene	.02⅝		.02⅝		.02¾	
***ARKANSAS—**						
41-43 water white kerosene	.02½	.02⅝	.02½	.02⅝	.02¾	
PENNSYLVANIA—						
43 Kerosene prime white	.03¾		.03¾		.03¾	
45 Kerosene water white	.03½	.04	.03¾	.04	.03⅞	.04¼
46 Kerosene water white	.03⅞	.04¼	.04	.04¼	.04½	
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04	.05½	.03¼	.04¼	.03½	.04½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.02	.02⅛	.02⅛		.02¼	.02⅜
42-44 water white kerosene	.02⅛	.02¼	.02⅝		.02⅜	.02½
GULF COAST (Export)—						
41-43 prime white	.03½		.03½		.03¾	
44 water white	.03½	.03¾	.03½	.03¾	.04¾	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	June 23		June 16		June 9	
OKLAHOMA (Group 3)—						
Below 18 gravity Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
18-22 Fuel Oil, per bbl.	.27½	.35	.27½	.35	.30	.35
20-22 Fuel Oil, per bbl.	.30	.35	.30	.35	.30	.35
22-26 Fuel Oil, per bbl.	.35	.40	.35	.40	.35	.40
24-26 Fuel Oil, per bbl.	.40	.45	.40	.45	.40	.50
26-30 Fuel Oil, per bbl.	.45	.50	.45	.50	.45	.55
28-30 Fuel Oil, per bbl.	.50	.55	.50	.55	.50	.60
32-36 Gas Oil (industrial)	.00¾	.01	.00¾	.01	.00¾	.01
32-36 Gas Oil (straw color, high cold test)	.00¾	.01	.00¾	.01	.00¾	.01
32-36 Gas Oil (straw color, low cold test)	.01¼	.01½	.01¾	.01½	.01¾	.01½
36-38 Distillate	.01¼	.01¾	.01¾	.01⅝	.01¾	.01⅝
38-40 Straw Distillate	.01⅜	.01¾	.01½	.01¾	.01½	.01¾

Note—Fuel oils over 40 cold test generally 5 to 10 cents per barrel less.

NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.20	.25	.20	.25	.22½	.27½
24-26 Fuel Oil, per bbl.	.25	.35	.25	.35	.30	.40
32-36 Gas Oil (industrial)	.00¾	.01	.00¾	.01	.00¾	.01
38-40 Straw Distillate	.01¼	.01½	.01¼	.01½	.01¼	.01½
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.50	.60	.55	.60	.55	.60
30-32 Gas Oil (low cold test)	.01⅞	.02	.01⅞	.02	.01⅞	.02
***ARKANSAS—**						
33-36 Distillate	.02¼	.02½	.02¼	.02½	.02¼	.02½
30-32 Gas Oil	.01¾	.02	.01¾	.02	.01¾	.02
16-22 Refinery Fuel Oil, per bbl.	.50	.55	.50	.55	.50	.55
GULF COAST (South Texas)—						
Gas Oil	.02½	.02¾	.02½	.02¾	.02½	.02¾
Bunker C Fuel (cargo lots), per bbl.	.60		.60		.60	
Bunker C Fuel (small lots)	.70		.70		.70	
PENNSYLVANIA—						
30-34 Fuel Oil	.02½		.02½		.02½	
36-40 Fuel Oil	.02½		.02½	.02⅝	.02⅝	
CALIFORNIA—						
42-45 480 endpoint engine distillate	.04½	.06	.03	.03½	.03	.03½
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.55	.80	.55	.80	.55	.85
15-19 Fuel Oil (cargo lots, at tidewater), bbl.	.55	.75	.55	.75	.55	.80
†15-19 Fuel Oil, f.o.b. tank cars	.30	.75	.30	.75	.30	.75
27 plus Diesel, per bbl.	.70	.95	.70	.95	.70	.95
30-34 Gas Oil	.70	.95	.70	.95	.70	.95
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.22½	.27½	.22½	.27½	.25	.30
22-26 Fuel Oil, per bbl.	.27½	.32½	.27½	.32½	.30	.35
28-30 Fuel Oil, per bbl. (zero)	.47½	.52½	.47½	.52½	.50	.55
32-36 Gas Oil (industrial)	.00¾	.01	.00¾	.01	.00⅞	.01⅛
32-36 Gas Oil (zero)	.01¼	.01¾	.01⅛	.01⅜	.01¼	.01½
38-40 Straw Distillate	.01⅞	.01⅝	.01⅛	.01⅜	.01¼	.01½

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content.

LUBRICATING OIL AND WAX

	June 23		June 16		June 9	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.04½	.04¾	.04½	.04¾	.04½	.04¾
100 vis., 3 color, 20-25 cold test	.04⅞	.04½	.04¼	.04½	.04¼	.04½
150 vis., 3 color, 20-25 cold test	.06¾	.07¼	.06¾	.07¼	.06¾	.07¼
150 vis., 4 color, 20-25 cold test	.06	.06½	.06	.06½	.06	.06½
180 vis., 3 color, 23-28 cold test	.07¾	.08¼	.07¾	.08¼	.07¾	.08¼
180 vis., 4 color, 23-28 cold test	.07½	.08¼	.07½	.08¼	.07¼	.08¼
180 vis., 5 color, 23-28 cold test	.07¼	.07½	.07½	.07½	.07¼	.07½
200 vis., 3 color, 23-28 cold test	.08½	.09	.08¾	.09½	.08¾	.09½
200 vis., 4 color, 23-28 cold test	.08½	.09¼	.08½	.09¼	.08½	.09¼
200 vis., 5 color, 23-28 cold test	.08	.08½	.08	.08½	.08	.08½
240 vis., 3 color, 25-30 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
240 vis., 4 color, 25-30 cold test	.10	.10½	.10	.10½	.10	.10½
240 vis., 5 color, 25-30 cold test	.09½	.10	.09½	.10	.09½	.10
280 vis., 3 color, 25-30 cold test	.12¼	.12¾	.12¼	.12¾	.12¼	.12¾
280 vis., 4 color, 25-30 cold test	.11¼	.11¾	.11¼	.11¾	.11¼	.11¾
280 vis., 5 color, 25-30 cold test	.10¾	.11½	.10¾	.11½	.10¾	.11½
Cylinder Stocks:						
600, steam refined, light green	.04	.05½	.04	.05½	.04	.05½
600, steam refined, dark green	.02½	.03	.02½	.03	.02½	.03
190-200 vis., D color, Bright Stocks	.17		.17		.17	
150-160 vis., D color, Bright Stocks 0-10 c.t.	.12½	.14	.13	.14	.13½	.14
150-160 vis., D color, Bright Stocks 10-25 c.t.	.12½	.13	.12½	.13	.12¾	.13
150-160 vis., D color, Bright Stocks 25-40 c.t.	.12¼	.13	.12¼	.13	.12½	.13
150-160 vis., E color, Bright Stocks	.12	.12½	.12	.12½	.12¼	.12½
Waxes:						
124-126 White Crude Scale Wax	.01¾	.02	.01¾	.02	.01¾	.02

All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½		.05½		.05½	
34 Sundebloom	.05		.05		.05	
36 Miners' Neutral	.05½		.05½		.05½	
150, 3 color	.15¼	.15½	.15½		.15½	
180, 3 color	.18	.18½	.18	.19	.18	.19
200, 3 color	.21		.21		.21	
220, 3 color	.23¼	.26½	.23	.26½	.23	.26½
600, steam refined	.07½	.08	.07½	.08	.07½	.08
650, steam refined	.10	.11	.10¾	.11¼	.10¾	.11¼
600, Pennsylvania Flash	.11½	.12½	.11½	.12½	.11½	.12½
600, E filtered	.11	.12	.11	.12	.11	.12
600, D filtered, Oil City	.16		.15	.16	.15	.16
Pennsylvania Bright Stocks below 35 c.t.	.16¼	.16½	.16¼	.16½	.17	
Pennsylvania Bright Stocks above 35 c.t.	.16		.16		.16¼	
*122-124 White Crude Scale Wax	.02		.02		.02	
124-126 White Crude Scale Wax	.02		.02		.02	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.05½		.05½		.05½	
200 vis., 3 color, pale oil	.07½	.07¾	.07½	.07¾	.07½	.07¾
300 vis., 3 color, pale oil	.08¾	.09	.08¾	.09	.08¾	.09
500 vis., 3½ color, pale oil	.10	.10½	.10	.10½	.10	.10½
750 vis., 3½ color, pale oil	.11½	.12	.11½	.12	.11½	.12
1,200 vis., 3½ color, pale oil	.14	.14½	.14	.14½	.14	.14½
2,000 vis., 4 color, pale oil	.15	.15½	.15	.15½	.15	.15½
200 vis., 5-6 color, red oil	.06¾	.07	.06¾	.07	.06¾	.07
300 vis., 5-6 color, red oil	.08	.08½	.08	.08½	.08	.08½
500 vis., 5-6 color, red oil	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
1,200 vis., 5-6 color, red oil	.13	.13½	.13	.13½	.13	.13½
2,000 vis., 6 plus color	.15	.15½	.15	.15½	.15	.15½
130 vis., 2½-3 color	.08	.08½	.08	.08½	.09	.09½
200 vis., 2½-3 color	.09	.10	.09	.10	.10	.10¾
300 vis., 3-3½ color	.10	.11	.10	.11	.10¾	.11½
350 vis., 3½-4 color	.11	.12	.11	.12	.11½	.11¾
400 vis., 3½-4 color	.12	.12½	.12	.12½	.12¼	.12¾

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

Red Neutral:						
200 vis., 4½-5 color	.09½	.10	.09½	.10	.09½	.10
300 vis., 5-6 color	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
400 vis., 5-6 color	.11	.12	.11	.12	.11	.12
500 vis., 4½-5 color	.12¼	.13	.12¼	.13	.12¼	.13
500 vis., 5-6½ color	.12		.12		.12	.12¾
600 vis., 6½ plus color	.13	.14	.13	.14	.13	.14

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	June 23		June 16		June 9	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.05½	.06¼	.05½	.06¾	.05¾	.06½
Kerosene, water white, 41-43	.04¾	.05	.05¼	.05½	.05¼	.05½
*Fuel Oil, Bunker "C," 41-43	.85		.85		.85	
†Fuel Oil, Diesel, 28-30, per bbl.	1.55		1.55		1.55	
Gas Oil, 28 gravity plus	.04		.04		.04	
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10¼	
28 pale Paraffin Oil, tank car	.07½		.07½		.07½	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.04		.04		.04	
Refined Wax:						
120-122 a.m.p., per lb.	.02⅞		.02⅞		.02⅞	
125-127 a.m.p., per lb.	.03⅛		.03⅛		.03⅛	
130-132 a.m.p., per lb.	.03⅝		.03⅝		.03⅝	
133-135 a.m.p., per lb.	.04		.04		.04⅛	
135-137 a.m.p., per lb.	.04½		.04½		.04⅝	
Petrolatum in barrels in carload lots, per pound:						
Dark Green	.01¾		.01¾		.01¾	
Amber	.02⅝		.03		.03	
Extra Amber	.02⅞		.03¼		.03¼	
Cream	.05¾		.06		.06	
Lily White	.06½		.06¾		.06¾	
Snow White	.07		.08		.08	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents a barrel.

NEW YORK (BAYONNE) EXPORT PRICES

	June 23		June 16		June 9	
600, steam refined cylinder stocks, in bbls.	.15¾	.16	.15¾	.16	.16	.16¼
635, steam refined	.16¼	.16½	.16¼	.16½	.16½	.17
650, steam refined	.18¾	.19	.18¾	.19	.19	.20
600, Pennsylvania Flash	.19½	.20	.19½	.20	.19½	.20
630, Pennsylvania Flash	.25¾	.26	.25¾	.26	.25¾	.26
600, Warren E	.19	.20	.19	.20	.19	.20
600, Oil City E	.18	.18½	.18	.18½	.18	.18½
Light 140-150 Bright Stocks	.25	.26	.25	.26	.25	.26
Dark 140-150 Bright Stocks	.24	.25	.24	.25	.24	.25

LOS ANGELES EXPORT PRICES

	June 23		June 16		June 9	
Kerosene, water white	.04½	.06	.04	.04½	.04	.04½
*U. S. Motor gasoline, 53-55, 437 e.p.	.05	.06½	.03¼	.04	.03¼	.04
*58-60, 400 endpoint gasoline	.05½	.06½	.03½	.04¼	.03½	.04¼

*For coastwise shipment.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

East Texas (June 20)† ..... $ .20
Rusk County, Tex. (April 6, 1931)* ..... .25
Corsicana heavy (June 3, 1931)† ..... .22
Other fields ..... See gravity table

*Posted by Panola Pipe Line Co. †Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties.. See gravity table

WEST TEXAS

Iatan and Westbrook.. Same as North Texas
Crane, Upton, Crockett, Howard, Glasscock, Ector, Winkler and Pecos Counties* ..... $ .25
Lea County, N. Mex.† ..... .25

*The Texas Company, June 2, 1931. All other companies, June 3, 1931. †The Texas Company, June 2, 1931. All other companies, June 3, 1931.

GULF COAST

Grade A and Grade B classifications discontinued ..... See gravity table
Jennings, La. (June 3, 1931)* ..... $ .40
Lockport, La. (June 3, 1931)† ..... See Gulf Coast gravity table
Refugio light ..... See gravity table
Refugio heavy† ..... .44
Markham (June 2, 1931)‡ ..... .37
High Island (June 3, 1931)¶ ..... .40

*Gulf Refining Co. †Vacuum Oil Co. ‡Humble Oil & Refining Co. ¶The Texas Company. §Gulf Pipe Line Co.

EASTERN STATES
Joseph Seep Purchasing Agency
(Effective June 3, 1931)

Penna Grade Oil in National Transit Lines (Pennsylvania) $1.50
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.35
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia) 1.35
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio) 1.00
Corning Grade Oil in Buckeye Pipe Line Co.'s Line ..... .65
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931) ..... .60
Wayne District Oil in Cumberland Pipe Lines (April 23, 1931) 1.17

ARKANSAS

Smackover, Ark. (all grades) (June 2, 1931)* ..... $ .37
Smackover, Ark. (all grades) (June 3, 1931)† ..... .35
Bellevue, La. (June 3, 1931) ..... .25
Urania (June 3, 1931) ..... .30
Calion, Ark., heavy (June 3, 1931) ..... .37
East El Dorado, Ark. (June 3, 1931) ..... .35
Stephens, Ark. (June 3, 1931) ..... .20
Other fields ..... See gravity table

*Posted by The Texas Company on June 2, 1931, and by Gulf Refining Co. on June 3. †Posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co. on June 3. Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania by Louisiana Oil Refining Co. Calion by Gulf Refining Co.; East El Dorado by Gulf Refining Co. and Magnolia Petroleum Co. Stephens posted by Louisiana Oil Refining Co. and Atlantic Oil Producing Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (June 3, 1931)* ..... $ .37
Luling (June 3, 1931)† ..... .35
Mirando (June 3, 1931)‡ ..... .44
Pettus (June 3, 1931)‡ ..... .50
Salt Flat (June 3, 1931)‡ ..... .37
Thrall§ .....
Lytton Springs (Lockhart) See gravity table
Dobrowolski (Oct. 25, 1930)¶ .....
Same as Mid-Continent gravity scale up to and including 38-38.9°
Somerset .....
Same as Mid-Continent gravity scale up to and including 38-38.9°

*The Texas Company. †Magnolia Petroleum Co. ‡Humble Oil & Refining Co. §Thrall prices same as North Central Texas less 19¼ cents per cwt. freight. ¶Grayburg

(Continued on Page 118)

CRUDE OIL GRAVITY TABLE

Gravity	1 Okla., Kans., North and Central Texas, East Central Texas	2 East Texas	3 N. La.-Ark.	4 Carson and Hutchinson Counties, Tex.	5 Gray County, Texas	6 Salt Creek, Wyo.	7 Gulf Coast
Below 25 degrees	...	...	...	...	...	...	.44
25 to 25.9	...	...	...	...	...	...	.45
26 to 26.9	...	...	...	...	...	...	.46
27 to 27.9	...	...	...	...	...	...	.47
28 to 28.9	...	...	...	...	...	...	.48
Below 29	.25	...	.25	...	...	...	...
29 to 29.9	.26	...	.26	...	...	.26	.49
30 to 30.9	.27	...	.27	...	...	.27	.50
31 to 31.9	.28	...	.28	...	...	.28	.51
32 to 32.9	.29	...	.29	...	...	.29	.52
33 to 33.9	.30	...	.30	...	...	.30	.53
34 to 34.9	.31	...	.31	...	...	.31	.54
Below 35	...	.25	...	.21	.24	...	...
35 to 35.9	.32	.27	.32	.22	.25	.32	.55
36 to 36.9	.33	.29	.33	.23	.26	.33	.56
37 to 37.9	.34	.31	.34	.24	.27	.34	.57
38 to 38.9	.35	.33	.35	.25	.28	.34	.58
39 to 39.9	.36	.35	.36	.26	.29	.34	.59
40 and over	.37	.37	.37	.27	.30	.34	.60

Note—On June 20, the Magnolia Petroleum Co. gave notice that effective at 7 a.m. on that day and until further notice, its prices on crude oil in the States of Oklahoma, Kansas, Texas, Louisiana and Arkansas, where it had been purchasing on a gravity basis, would be as follows per barrel at the well: North and Central Texas, including Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden, 35 cents; East Texas, 30 cents; Thrall, 35 cents; East Central Texas, including Mexia, Wortham, Corsicana light, 34 cents; Panola County and Lytton Springs, 34 cents; Gray County, Texas Panhandle, 30 cents and Carson and Hutchinson Counties, Texas Panhandle, 26 cents; Oklahoma: Cushing, Yale, Oklahoma City, Morrison, Wewoka and Seminole, 36 cents; Cement, Duncan and Walters, 32 cents; Hewitt and Graham, 28 cents; Healdton, 25 cents. Kansas: Augusta, 30 cents, North Louisiana: Bull Bayou, 36 cents; Haynesville, 27 cents; Pine Island, 32 cents; Cotton Valley, 25 cents. Arkansas: El Dorado and Rainbow, 25 cents.

Column 1—Stanolind Crude Oil Purchasing Co., H. F. Wilcox Oil & Gas Co., Sinclair Refining Co., Barnsdall Refineries, Inc., Mid-Continent Petroleum Corp., Champlin Refining Co., Mid-Kansas Oil & Gas Co., Eason Oil Co., Standard Oil Co. of Kansas, Continental Oil Co., Pure Oil Co., Tidal Oil Co., Tidal Western Oil Co. and Empire Pipe Line Co., all on June 1. Magnolia Petroleum Co. on June 2, with the exception that Magnolia posted below 26 degrees at 22 cents; 26-26.9 at 23 cents; 27-27.9, 24 cents. The Empire Pipe Line Co. adopted the Magnolia's schedule on lower grades in Carter County, Oklahoma. The Texas Company adopted Stanolind schedule on June 2, Gypsy Oil Co., June 2; Gulf Pipe Line Co., June 3; and Humble Oil & Refining Co., June 3.

Column 2—The Texas Company on June 2, and Humble Oil & Refining Co. and Arkansas Fuel Oil Co. on June 3 announced the withdrawal of their posted prices in East Texas. Above posted prices are of Sinclair Refining Co. and Gulf Pipe Line Co., effective May 26, 1931.

Column 3—The Texas Company, June 2; Standard Oil Co., Magnolia Petroleum Co. and Gulf Refining Co., June 3.

Column 4—The Texas Company, June 2, 1931; Humble Oil & Refining Co., Gulf Pipe Line Co., Continental Oil Co. and Magnolia Petroleum Co., June 3.

Column 5—The Texas Company, June 2; Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., and H. F. Wilcox Oil & Gas Co., June 3.

Column 6—Midwest Refining Co., June 1.

Column 7—Posted by The Texas Company, June 2; Gulf Pipe Line Co., Humble Oil & Refining Co., Vacuum Oil Co. Sun Oil Co. posted same prices on June 3 up to and including 35 gravity at 55 cents, but will pay only 55 cents for all oil above 35 gravity.

CALIFORNIA CRUDE OIL PRICES

STANDARD OIL CO. OF CALIFORNIA

For its current purchases of crude oil at the well (unless otherwise specified) for allowable crude oil produced in accordance with allocations made by the California Statewide Curtailment Committee. All gravities above those quoted take highest price offered in that field. Effective June 19, 1931, at 7 a. m.

Gravity	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea Canon	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset Elk Hills, Buena Vista Hills	Lost Hills
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	$.65	$.65	...	$.55	$.55
15-15.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
16-16.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
17-17.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
18-18.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
19-19.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
20-20.9	.65	.65	.65	.66	.66	.65	.65	.65	...	.55	.55
21-21.9	.65	.65	.65	.68	.67	.65	.66	.65	...	.55	.57
22-22.9	.65	.65	.66	.70	.68	.66	.68	.65	...	.56	.59
23-23.9	.67	.67	.68	.72	.70	.67	.70	.66	...	.58	.60
24-24.9	.69	.69	.70	.74	.72	.68	.72	.67	$.65	.61	.62
25-25.9	.71	.71	.72	.76	.74	.70	.74	.69	.65	.64	.64
26-26.9	.73	.73	.74	...	.76	...	...	.71	.65	.66	.66
27-27.9	.75	.75	.76	...	.78	...	...	.73	.68	.68	.67
28-28.9	.77	...	...	...	.80	...	...	.75	.71	.71	.69
29-29.9	.79	...	...	...	...	...	...	.77	.73	.74	.71
30-30.9	.81	...	...	...	...	...	...	.79	.75	.76	.73
31-31.9	...	...	...	...	...	...	...	...	.78	...	...
32-32.9	...	...	...	...	...	...	...	...	.80	...	...
33-33.9	...	...	...	...	...	...	...	...	.83	...	...
34-34.9	...	...	...	...	...	...	...	...	.85	...	...
35-35.9	...	...	...	...	...	...	...	...	.87	...	...

Standard Oil Co. of California prices in other fields:

Wheeler Ridge—55 cents per barrel for all grades (14° to 25.9°).
Coalinga—55 cents for all grades from 14° to 24.24.9°; 57 cents for 25 gravity.
Newhall, McKittrick and Kern River—55 cents for all grades (14° to 19.9°).
Montebello—65 cents for all grades (14° to 25.9°).
Whittier and LaHabra—65 cents for all grades (14° to 22.9°).
Elwood Terrace, f.o.b. ship—32° to 33.9°, 79 cents; 34° to 34.9°, 81 cents; 35° to 35.9°, 84 cents; 36° and above, 87 cents.
Playa Del Rey: Prices subject to field gathering charge of 5 cents per barrel—19° to 19.9°, 65 cents; 20° to 20.9°, 65 cents; 21° to 21.9°, 66 cents; 22° to 22.9°, 67 cents; 23° to 23.9°, 68 cents; 24° to 24.9°, 67 cents; 25° and above, 68 cents.

ASSOCIATED OIL CO. PRICES

Associated Oil Co. prices, effective June 20, are as follows:
Ventura Avenue, 22 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.
Kettleman Hills, 30 gravity and above, 66 cents.
Potrero, 24 gravity, 69 cents, with 2 cents added for each degree upward to 34 gravity, which is 69 cents.

(Continued on Page 131)

TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns June 23

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago	14.0	14.0	3.0	9.0
Decatur, Ill.	14.4	14.4	3.0	9.0
E. St. Louis	13.7	13.7	3.0	8.2
Joliet	14.4	14.4	3.0	9.0
Peoria	14.4	14.4	3.0	9.0
Quincy	14.2	14.2	3.0	8.8
Davenport, Ia.	14.5	14.5	3.0	9.3
Des Moines	14.5	14.5	3.0	9.3
Keokuk	14.5	14.5	3.0	9.3
Sioux City	14.1	14.1	3.0	8.9
Duluth, Minn.	15.5	15.5	3.0	9.9
Mankato	15.1	15.1	3.0	9.7
Minneapolis	15.2	15.2	3.0	9.3
La Crosse, Wis.	16.2	16.2	4.0	10.0
Milwaukee	15.1	15.1	4.0	8.9
Madison	15.3	15.3	4.0	9.1
Detroit, Mich.	14.8	14.8	3.0	10.7
Grand Rapids	14.7	14.7	3.0	10.6
Saginaw	14.9	14.9	3.0	10.8
Evansville, Ind.	15.1	15.1	4.0	9.9
Indianapolis	15.3	15.3	4.0	10.1
South Bend	15.4	15.4	4.0	10.2
Fargo, N. D.	16.9	16.9	3.0	11.9
Huron, S. D.	16.3	16.3	4.0	10.7
Sioux Falls	15.8	15.8	4.0	10.4
K. C., Mo.	13.9	13.9	3.0	7.6
Springfield*	13.9	13.9	3.0	8.6
St. Louis*	12.9	12.9	2.5	8.3
St. Joseph	13.5	13.5	3.0	7.5
Wichita, Kans.	12.8	12.8	3.0	7.8
Bartlesville, Ok.	13.0	16.0	5.0	7.5

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 2 cents or more below the price on the regular grade.

Effective April 16—Discounts on Q.D.A. on 1,000 gallons or more per month throughout territory: Red Crown Ethyl Gasoline, 3 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price.

Discount in Chicago division on 1,000 gallons or more per month: Red Crown Ethyl Gasoline, 4 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 2 cents off tank wagon price.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

PACIFIC COAST TERRITORY

	Gasoline			Kero.
	Wh'le'e price	Retail* price	Incl'ds tax of	tank wagon
Fresno	19.5	16.5	3.0	17.0
San Francisco	19.5	16.5	3.0	15.5
Los Angeles	19.0	16.0	3.0	15.5
Reno, Nev.	23.5	21.5	4.0	19.0
Portland, Ore.	21.0	18.0	4.0	16.5
Seattle, Wash.	22.0	19.0	5.0	16.5
Tacoma	21.5	18.5	5.0	16.5
Spokane	22.5	18.5	5.0	20.5
Phoenix, Ariz.	14.0	16.0	5.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 3 cents plus a 2-cent special temporary discount subject to withdrawal at any time.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	13.0	16.0	4.0	8.0
Fort Worth	12.0	14.0	4.0	8.0
Houston	12.0	16.0	4.0	11.0
San Antonio	14.0	18.0	4.0	10.0
El Paso	13.0	17.0	4.0	12.0
Texarkana	15.0	16.0	4.0	11.0
Muskogee, Ok.	12.0	15.0	5.0	8.0
Okla. City	10.0	12.0	5.0	7.0
Tulsa	10.0	13.0	5.0	8.0
Ft. Smith, Ark.	15.0	15.0	5.0	11.0
Little Rock	16.0	16.0	6.0	11.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	12 9	12 9	4.0	9.25
McCook	16.0	17.75	4.0	10.75
Norfolk	15.75	16.75	4.0	9.75
N. Platte	16.75	17.75	4.0	10.50
Scottsbluff	16.0	16.0	4.0	10.25

Note—Dealers' discounts allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off station price; third grade, 1 cent off station price.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	18.0	16.0	4.0	12.5
Augusta	18.0	20.0	6.0	14.0
Macon	18.0	18.0	6.0	13.0
Savannah	18.0	18.0	6.0	12.0
Birmham, Ala.	16.0	18.0	5.0	13.0
Mobile	17.0	19.0	4.0	13.0
Montgomery	16.0	18.0	4.0	13.5
Clarks'le, Miss.	18.0	20.0	5.0	13.5
Jackson	16.0	18.0	5.0	11.0
Natchez	18.0	20.0	5.0	13.5
Gulfport	16.0	16.0	5.0	13.5
Vicksburg	16.0	18.0	5.0	11.0
Jack'ville, Fla.	17.0	18.0	6.0	12.0
Miami	18.0	20.0	6.0	18.0
Pensacola	19.0	20.0	6.0	13.0
Tampa	17.0	18.0	5.0	12.0
Lexington, Ky.	17.0	18.0	5.0	12.0
Covington	16.0	17.0	5.0	11.0
Louisville	16.0	17.0	5.0	11.0
Ashland	17.0	19.0	5.0	13.0
Paducah	17.0	18.0	5.0	11.0
Bowling Green	19.0	21.0	5.0	14.5
Corbin	18.0	19.0	5.0	15.0

A third grade, "Kyso Green," is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery, Birmingham and Mobile state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.	15.5	16.5	6.0	12.0
Baton Rouge	14.5	15.5	5.0	12.0
Alexandria†	15.5	16.5	6.0	12.0
Lafayette*	15.5	16.5	6.0	12.0
Lake Charles*	15.5	16.5	6.0	12.0
Shreveport	14.5	15.5	5.0	12.0
Knoxville, Tenn.	17.0	18.0	5.0	13.5
Memphis	13.0	14.0	5.0	10.0
Chattanooga	16.5	17.5	5.0	13.0
Nashville	16.0	17.0	5.0	12.5
Bristol	17.5	18.5	5.0	14.0
Lt. Rock, Ark.	15.5	16.0	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	*11.0	*13.0	...	12.0
Philadelphia	*11.0	*13.0	...	12.0
Scranton	*11.0	*13.0	...	12.0
Allentown	*11.0	*13.0	...	12.0
Altoona	*11.0	*13.0	...	12.0
Erie	11.0	*13.0	...	12.0
Dover, Del.	14.0	16.0	3.0	12.0
Wilmington	14.0	16.0	3.0	12.0
Springf'd, Mass.	15.5	17.5	3.0	11.0
Fall River	15.0	17.0	3.0	11.0
Worcester	15.3	17.3	3.0	11.0
Boston	14.5	16.5	3.0	11.0
Providence, R.I.	13.7	15.7	2.0	10.0
Hartford, Conn.	14.5	16.5	3.0	10.0
New Haven	14.6	16.6	3.0	10.0

*Does not include tax of 3 cents in Pennsylvania. Pennsylvania tax is collected by the dealer and paid by him direct to the State. Atlantic Refining Co. recognizes a 3-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purpose of resale. Atlantic Refining Co. also recognizes a maximum discount of 3 cents per gallon on gasoline to commercial accounts under contract for one year.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points	15.0	16.0	4.0	*12.0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13.0 cents.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	16 6	17.6	2.0	15 6
New York*	15.3	15.3	2.0	14.3
Buffalo	16.8	16.8	2.0	14.8
Rochester	16.0	16.0	2.0	14.0
Syracuse	16 8	16 8	2.0	14.8
Boston, Mass.	16.5	16.5	3.0	13.5
Augusta, Me.	13.8	13.8	4.0	14.8
Manch'tr, N. H.	18.4	18.4	4.0	14.0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atl'tic City, N.J.	13.7	15.7	3 0	10.5
Newark	12.7	14.7	3 0	9 5
Annapolis, Md.	15.2	16 2	4.0	10 0
Baltimore	14 4	15.4	4.0	8.5
Cumberland	16.2	17.2	4 0	11.0
Wash'gton, D.C.	12 9	13 9	2 0	9 7
Danville, Va.	17 0	18.0	5.0	10.8
Norfolk	15.5	16.5	5.0	9 3
Petersburg	16.5	17.5	5.0	10 3
Richmond	15.9	16 9	5.0	9.7
Roanoke	17.2	18 2	5.0	11.0
Charles'n, W.Va.	15.7	16.7	4.0	10.5
Keyser	16.3	17.3	4.0	11.1
Parkersburg	14.4	15.4	4.0	9.2
Wheeling	15.6	16.6	4.0	10.4
Charlotte, N. C.	18 5	19.5	6.0	11.3
Hickory	18.8	19.8	6.0	11.6
Mt. Airy	18.7	19.7	6.0	11.5
Raleigh	18.4	19.4	6.0	11.2
Salisbury	18.7	19.7	6.0	11.5
Charleston, S.C.	16.5	17.5	6.0	9.3
Columbia	18.4	19.4	6.0	11.2

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers, except in Washington, D. C., and in Maryland where discount is 3 cents.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	14 0	17.0	4.0	12.5
Pueblo	14.0	17.0	4.0	12.0
Grand Junction	16 0	19.0	4.0	14.5
Casper, Wyo.	15.0	18.0	4.0	10.0
Cheyenne	16.0	19.0	4.0	11.5
Butte, Mont.	17.0	20 0	5.0	16.0
Billings	20.0	23.0	5.0	14.5
Great Falls	20.0	23.0	5.0	16.0
Helena	20.0	23.0	5.0	16.0
Salt Lake, Utah	16 5	18.5	4.0	16 0
Albu'que, N.M.*	17.0	21.0	6.0	14.0
Boise, Idaho	18.0	21.0	5.0	18.0
Twin Falls	15.0	....	5.0	18.0

*One-cent excise city tax.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	12.0	8.0
V.M.&P. naphtha	14.0	9.5
Cleaners' naphtha	16.2	11.0
Stanisol	16.2	11.0

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

All dumps of 50 gallons or more.....$0.07

Note—Outside Chicago furnace oils discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

CRUDE OIL PRICE CHANGES

The Standard Oil Co. of California on June 19, followed by other purchasers of oil in California, revised prices on refinable crudes. The revision was in the form of substantial increases ranging from 20 cents to 40 cents per barrel for the average grade of refinable crude.

In the Mid-Continent the Magnolia posted a flat price in every field in which it had previously purchased on a gravity basis. The new prices were effective on June 20 and affect certain fields in Kansas, Oklahoma, Texas, North Louisiana and Arkansas. It made no changes in the prices it was paying in the West Texas fields.

TANK WAGON CHANGES

Continental Oil Co. advanced the gasoline tank wagon and station price 1 cent in Albuquerque, N. Mex., June 15 to equalize the 1-cent excise city tax which became effective on that date. On June 13 the gasoline tank wagon price was reduced 2 cents in Twin Falls, Idaho, to 15 cents. On June 16 the gasoline price was reduced 1 cent throughout Colorado but no change was made in the prices at Denver, Pueblo or Grand Junction.

Standard Oil Co. of New Jersey reduced the kerosene price throughout its territory 1 cent on June 15 except in Baltimore, Md., Washington, D. C., Norfolk, Va., and Charlotte, N. C.

Standard Oil Co. of California reduced the gasoline wholesale and retail prices 1 cent in Spokane, Wash., to 16 and 19 cents June 13. On June 19 the company

(Continued on Page 127)

CRUDE OIL PRICES

(Continued from Page 117)

Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products Co. ‖Pioneer Oil & Refining Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles (Mar. 7, 1931):	
33 gravity and above	$ .72
Under 33 gravity	.50
Fort Collins (June 2, 1931)	.30
Florence (June 3, 1931)	.27
Wellington (June 2, 1931)	.25
Dutton Creek (Oct. 28, 1930)	1.01
Rock Creek, Wyo. (June 2, 1931)	.45
Frannie, light (June 2, 1931)	.35
Frannie, heavy (June 2, 1931)	.25
Salt Creek .....Mid-Continent gravity table	
Big Muddy (June 2, 1931)	.40
Grass Creek, heavy (June 2, 1931)	.62
Grass Creek, light (June 2, 1931)	.62
Elk Basin (June 2, 1931)	.62
Lance Creek (June 2, 1931)	.75
Poison Spider (Mar. 5, 1931)	.70
Notches (Mar. 14, 1927)	.65
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage (Apr. 15, 1931)	.98
Lost Soldier (Mar. 5, 1931)	.55
Hamilton Dome (Mar. 14, 1927)	.85
Greybull (Oct. 28, 1930)	1.25
Torchlight (Oct. 28, 1930)	1.25
Cat Creek (June 3, 1931)	.60
Pondera, Mont. (June 3, 1931)	.75
Sunburst, Mont. (June 2, 1931)	.85
Hogback, N. Mex. (June 3, 1931)	.65
Artesia, N. Mex. (June 3, 1931)	.25
Lea County, N. Mex. (June 3, 1931)	.25
Border, Mont.	1.55
Red Coulee, Alberta	1.55

Note—Salt Creek, Cat Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and the remainder by the Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia posted by Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Ohio Oil Co. ceased posting Artesia on March 5, 1931. Lea County posted by Humble Oil & Refining Co. Fort Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa by the Continental Oil Co. Osage posted by Arro Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective June 2, 1931)

Lima	$ .70
Wooster	.73
Illinois	.55
Indiana	.35
Princeton	.55
Plymouth	Shut in
Western Kentucky	.50
Midland, Mich.* (June 1, 1931)	.52
Dundee, Mich.†	
Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity scale Upper and Lower Traverse Sands, Mich.†	
.....Same as Mid-Continent gravity scale	
Somerset, Ky. (June 5, 1931)	.55
Oil City, Ky. (June 6, 1931)	.50
Petrolia (Canada) (June 4, 1931)¶	1.50
Oil Springs (Canada) (June 4, 1931)¶	1.62
Alberta (Canada)‖:	
50° and above (Mar. 1, 1931)	2.36
45 to 45.9° (Mar. 1, 1931)	1.87

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‡Posted by Stoll Refining Co. §Posted by Imperial Oil, Ltd. ‖Posted by Imperial Oil, Ltd. and Regal Oil & Refining Co. of Calgary. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and delivered through Cumberland Pipe Line.

Tide Water Pipe Co.

Bradford district (June 3, 1931)	$1.75
Allegany district (June 3, 1931)	1.75

Pure Oil Co.

Cabin Creek, W. Va. (June 3, 1931)	$1.35
Kelly Creek, W. Va. (June 3, 1931)	1.25
Bradford Hollow, W. Va. (June 3, 1931)	1.25

MEXICAN CRUDE

Panuco*	$ .44

*F.o.b. ship, based on May transactions and exclusive of taxes and bar dues.

Of Interest to Sales Departments

Associated Oil Co. To Issue Stickers For Olympic Games

Turning its publicity efforts toward boosting the Olympic Games which in 1932 will bring tens of thousands of people from all over the world to California and the Pacific Coast region, the Associated Oil Co. has issued 250,000 Olympic Games windshield and tire cover transfers, and 500 large curb stand displays for its southern California service stations.

First to receive one of the new stickers was Maynard McFie, vice president of the Olympic Games committee, who warmly commended Associated's support of the international event. A transfer was fixed on the windshield of a new Auburn, official Olympic Games car, by Georgia Coleman, Los Angeles Athletic Club diver, and Herman Brix, Los Angeles Athletic Club shot-put champion. Miss Coleman, holder of national diving records, is considered the leading woman diver of the world today. In 1929 she took second place in two events in the Olympic Games at Amsterdam. Brix holds a number of world's records for the shotput, and took second in this event in the 1928 Olympics.

B. I. Graves, general salesmanager for Associated, pointed out that the company is vitally interested in sports, having won the title of world's leading sports broadcast sponsor. He predicted that not only will the Olympic Games attract huge throngs to the West, but that they will turn the attention of the entire world to this region.

The new metal curb standards, a manifold enlargement of the stickers, now appear at all Associated stations in southern California, carrying the Olympic Games message alike to pedestrians and motorists.

CONSUMPTION OF U. S. LUBRICANTS IN AUSTRIA

WASHINGTON, D. C., June 20.—American oil companies have constantly increased their trade in lubricating oil in Austria during the last four years while all competitors have shown declining exports to that country, with the exception of Rumania. While there was an increase of from 65,958 bbls. of lubricating oil taken by Austria in 1928 to 67,526 bbls. received in 1930, American oil imports increased from 29,779 bbls. in 1928 to 41,333 bbls. in 1930. Imports from Germany, Russia and Poland all decreased, Rumania alone increasing from 3,956 bbls. in 1928 to 5,750 bbls. in 1930, according to advices just received by the Department of Commerce.—C.E.K.

WILLIAM L. MACGREADY

NEW YORK, June 20.—William L. MacGready, vice president of the Sinclair Refining Co., died suddenly of heart disease at his home at 7337 Austin Street, Forest Hills. He was 44 years old.

Born in New York City, September 8, 1886, Mr. MacGready came to the Sinclair organization from the Roxana Petroleum Co. in March, 1919. In addition to his post as vice president of the Sinclair Refining Co., he was vice president of the Mexican Sinclair Petroleum Corp., Sinclair Cuba Oil Co., Pierce Oil Co., S. A., and other Sinclair subsidiaries.

MUST HAVE 60 OCTANE NUMBER

Colored gasoline must have an octane number of 60 or more before it may be sold in North Dakota according to a recent law. Gasolines not passing this specification must be sold without the addition of coloring matter.

INCREASING STATE GASOLINE TAX NOW PROVING TO BE A BOOMERANG

While the last Oklahoma legislature was considering the bill increasing the gasoline tax from 4 cents to 5 cents per gallon, it was argued by those opposing the increase that increasing the tax would not result in increasing the revenue but would in fact result in decreasing the revenue, because in addition to making the price of gasoline prohibitive to many consumers, it would increase the profit from tax evasion and stimulate the fast growing tax evasion racket. When the tax was 4 cents, it had then even reached, or almost reached, the point where it was becoming prohibitive to honest folks who paid the tax and profitable to dishonest folks who violate the law and fail to pay. Employes of the State who had to do with the collection of the tax testified before legislative committees that in their opinion the evasion then amounted to 10 per cent. The marketers, who had been complying with the law, argued that the tax evasion created a competition they could not meet, and if the same was continued the tax evader would ultimately take all the business, the tax paying marketer be destroyed, and the State would accomplish nothing as it would lose its revenue, that the State could perpetrate no greater injustice than to destroy the taxpayer and build up and enrich the law violater. The legislature apparently was only half convinced and passed the act as a temporary experiment, increasing the tax to December 31, 1931, from 4 to 5 cents per gallon, diverting the additional 1 cent from the highways to charity.

The increased tax became effective late in March, and its result is reflected in the May collection of gasoline tax by the state auditor, this collection covering the month of April, the first whole month the increased tax was effective. We can, therefore, now take stock and see if there was merit in the argument presented by those opposing the tax increase.

In May, 1930, at a 4-cent per gallon rate, the total gasoline tax collected for April was $1,049,000. In May, 1931, the total collection for April, at a 5-cent per gallon rate, was $936,000, showing a decrease, notwithstanding the 25 per cent increase in the tax rate, of $113,000. Figured on the basis of the old tax, which was effective in May, 1930, this would show a decrease in revenue in the month of May, 1931, against the month of May, 1930, of $300,000. And this is the actual decrease in the revenue applicable to the highways.

It may be contended this decrease is due to economic conditions, but the same period showed an increase in exempt gasoline (farm tractor exemption) of 426,000 gallons, an increase of 37 per cent. Certainly if the use for farm tractors increased 37 per cent, the increase for all other purposes should have been something near the same ratio. But if there was such an increase, it escaped paying the tax, while the honest marketer and honest consumer were paying 5 cents per gallon on that sold or consumed. What is the reasonable inference—in fact the only inference—to be drawn from this great increase in the use, or alleged use, for farm tractor purposes? It cannot be claimed that the decrease in revenue is due solely to economic depression.

Comparison with other states having a reasonable tax rate, which are certainly suffering from economic depression as much or more than Oklahoma, shows only

(Continued on Page 127)

CONSIDER IMPORT TAXES TO PROTECT REFINERIES

NEW YORK, June 19.—The Mexican government is considering legislation imposing a prohibitive import duty on gasoline as a step toward protecting the operations of Tampico refineries, and enabling them to sell in the Juarez and Chihuahua City marketing areas in competition with United States refiners, according to reports from Mexico City.

A large part of Mexico's gasoline requirements in the larger centers of population near the border is at present being supplied by California and Texas refineries, it is stated.

CONFLICTING TAX LAWS

Conflicting views are expressed in two laws recently passed in two states regarding the showing of the state gasoline tax at filling stations. Pennsylvania now compels the station operator to post the tax separate from the net price on the gasoline providing a penalty of $25 and costs if this provision is violated and after August 3 Nebraska will enforce a recent law which will not permit reference to the amount of the gasoline tax.

Pennsylvania has a 3-cent tax and Nebraska will have a 4-cent tax after August 3. The Nebraska law also provides that a sign must be posted for each grade of gasoline showing the total price.

NEW COLEMAN REFINERY

COLEMAN, Tex., June 20.—A 1,000-bbl. refinery will be built near here by Duke Baird of Oklahoma City. The plant will run crude produced in the local fields.

PROMOTE DOUGLAS HOOKER

NEW YORK, June 19.—Douglas Hooker has been transferred from the Olean, N. Y., refinery of Vacuum Oil Co. to the Paulsboro, N. J., plant, where he is now assistant superintendent. Mr. Hooker has been with the Vacuum company at Olean for the past two years and previous to that time was associated with Standard Oil Co. of California for nine years. Mr. Hooker is the son of G. W. Hooker, now retired, who was formerly manager of the Vacuum Olean refinery and was for many years in charge of the company's refining operations in Austria.

START CENTRAL PLANT

The Central Refining Co. last week started construction of a 10,000-bbl. skimming plant at Friars Switch, north of Henderson in the East Texas area. The plant is located on the Missouri Pacific Railroad across the tracks from the East Texas Refining Co.'s plant which was the first to be built in the East Texas area.

It is understood that the Central company expects to have the refinery in operation within 60 days, day and night construction crews being employed. H. C. Chadwick is superintendent of the plant.

MOSQUITO REPELLANT

The Standard Oil Co. of California has added a white odorless cream to its list of new specialties. This cream is intended to repell mosquitoes and similar small pests. It is accompanied by such other well known specialties of the company as Flit, Nujol and Mistol.

TERMS OF SPANISH OIL CONTRACT WITH SOVIET

Campania Arendataria de Monopoli Petrolio (Campsa), the company holding the monopoly for supplying Spain with its petroleum products during the next three years, will receive a discount of 9 to 18 per cent on its purchases of Russian oil. Under the terms of the contract, it is understood, 875,000 tons of kerosene, 140,000 tons of gasoline, 150,000 tons of fuel oil and 30,000 tons of miscellaneous oils will be sold to Campsa from July 1, 1931, to the end of 1934. The Soviet Petroleum Syndicate in supplying the oil found strong competition from other marketers but secured the business on the basis of allowing the discount above to be applied off of the world price and also will permit an elapse of 60 days before receiving payment.

It is understood that in case of a break in the agreement between the Campsa and the Spanish government, the government will take over the contract and will carry out its terms, thus in effect guaranteeing the fulfillment of the instrument.

NAVY AWARDS SEVERAL CONTRACTS FOR LUBS

The Navy Department last week at Washington, D. C., awarded contracts for lubricating oils totaling $546,262.13 for delivery during 1932.

The Sinclair Refining Co. secured the largest contract totaling $272,556.35 for lubricating oils to be delivered to the East Coast naval yards and stations and other points in the states and Alaska. Other contracts were as follows:

Associated Oil Co. for West Coast yards and stations, $103,646; Galena Signal Oil Corp. for East Coast, $68,175; Standard Oil Co. of California for West Coast, $53,307.48; Tide Water Oil Sales Corp. for East Coast, $31,380; The Texas Company for West Coast, various states, Honolulu and Alaska, $13,641.30; Gulf Refining Co. for East Coast and various states, $2,656; Standard Oil Co. of New Jersey to India, various states, $900.

PORTO RICO IMPORTS

NEW YORK, June 19.—Effective August 5, under the terms of a new Porto Rican law, petroleum products will bear the following import taxes: Kerosene, or substitutes therefor, 3 cents per gallon; lubricating oils, 10 per cent ad valorem; lubricating greases, 2 cents per pound. Effective July 1, the Porto Rican import duty on gasoline will be increased to 7 cents per gallon and that on kerosene to 3 cents per gallon.

SINCLAIR LONGVIEW PLANT

FORT WORTH, Tex., June 22.—The Sinclair Refining Co. will build a skimming plant at Longview in East Texas, according to information which became available here. Although the size of the plant has not been announced it is believed that it will have a capacity between 5,000 and 10,000 bbls. daily.

Located at Longview, the plant will have the railroad facilities of the Texas & Pacific Railroad and also the I.&G.N. The plant will furnish products for the Sinclair distribution in Texas and the southeastern states.

PHILLIPS RE-ENTERS MARKET

The Phillips Petroleum Co. will reenter the Panhandle Field of Texas to purchase crude. The request has been made through the Philtex Purchasing Agency for the buying of approximately 5,000 bbls. of crude daily.

BUREAU OF MINES TESTS USE OF ALUMINUM FOR OIL LEASE TANKS

Aluminum, as a material for the construction of oil lease tanks, has been found to have certain promising possibilities because of its resistive behavior in the presence of corrosive hydrogen sulphide gas, but the operating conditions of the tank batteries must be controlled to prevent the corrosive action of concentrated brines on the aluminum tank plates, concludes the United States Bureau of Mines, Department of Commerce, following a series of test on tanks of this construction.

The first of a series of reports on the subject contains the results of a one-year test on aluminum lease tanks conducted near Borger, Tex. A short review of a preliminary test made on a battery of tanks in Crane County, Texas, is also included in the report.

The field laboratory and test tank battery in this test were located about 2 miles north of Borger, Tex., on the Whittenburg A (D. S.) lease. The lease consisted of 30 acres with four producing wells which had been drilled approximately two years prior to the beginning of the test period.

From the standpoint of lease tank corrosion, the oil on this lease is considered a typical example of the more destructive type in the Panhandle area. The production on the test lease includes hydrogen sulphide gas, highly concentrated brine, and emulsions which are treated with chemical reagents, heat, and gas agitation to break them down.

No excessive corrosion of producing equipment had occurred on the lease, with the exception of that suffered by previous installations of steel tanks. According to the material records, the tanks had been corroding more or less rapidly, and in some cases the life had not exceeded 14 months.

The experimental tank battery at the beginning of the test consisted of a steel oil and gas separator, an all-aluminum flow tank, two steel stock tanks and two all-aluminum stock tanks. The test tanks were set on a wooden subgrade, which consisted of the customary dirt grade on which was laid a subgrade or flooring of 1x12-inch yellow pine sheathing covered with heavy tarred paper. All of the tanks were of new material and of bolted construction in accordance with A.P.I. specifications.

The test tanks were equipped with thermocouples for determining the temperatures within the tanks by means of potentiometers. In addition, a continuous record of the temperature of the vapor space of each tank was obtained by means of a recording thermometer, and routine observations were made on the tanks to obtain a continuous record of the major corrosive conditions to which the tanks were subjected under the operating conditions.

The aluminum flow tank, because of its operation, was subjected to most severe service of any in the battery. Destructive action was confined mainly to that portion of the tank which had been constantly subjected to the action of salt water or was in proximity with the steam coils. The two all-aluminum stock tanks were found to be in good condition at the end of the test except for some destructive action occurring from 4 to 6 inches about the bottoms of the tanks.

There was no apparent corrosion of the aluminum in the vapor space of the tanks, showing that aluminum is resistive to the corrosive action of hydrogen sulphide gas and therefore has possibilities as a tank building material. However, three definite limitations of aluminum were observed in the tests:

1. The use of aluminum steam coils in flow tanks or stock tanks where the coils come in contact with salt water is not practical; but it is possible that other forms or alloys of aluminum may be developed that will be successful in resisting high temperature salt water corrosion; it was noted that certain of the fittings made of No. 43 alloy resisted such corrosion.

2. The aluminum tank plate used did not prove highly resistant to the corrosive action of concentrated brines, as was shown by deep etching in those areas of the side sheets which had been subjected to the action of salt water for an extended period. This result was predicted by representatives of the Aluminum company at the beginning of the test, and on the whole the metal resisted the action of the brines much better than had been anticipated.

3. In places where aluminum is used in conjunction with steel, extreme care must be taken that no electrolyte such as salt water is present. Even in the absence of salt water such installations should include efficient insulation between the metals.

Further details are given in Report of Investigations 3066, "The Use of Aluminum for Oil Lease Tanks: Part 1—Field Tests," by Ludwig Schmidt, John M. Devine and C. J. Wilhelm, copies of which may be obtained free from the United States Bureau of Mines, Department of Commerce, Washington, D. C.

SPEED-REDUCER OF NEW DESIGN MADE BY JAMES

A speed reducer of vertical spiral-bevel type is announced by the D. O. James Manufacturing Co., 1114 West Monroe Street, Chicago. The chrome-nickel, spiral-bevel gears are designed to gain greater efficiency from the improved tooth form which provides more teeth in constant contact and a greater tooth bearing or pressure area in each tooth of given size. High efficiency and a greater delivery of input power are declared thus to be obtained.

Shafts are made of 40 carbon steel and roller bearings are provided on both drive and driven shafts. Where large ratios of reduction are required this type of reducer is made integral with a planetary reduction unit so that all ratios from 8 to 1 to 1,600 to 1 are available.

R. F. MEHL JOINS ARMCO

R. F. Mehl has been appointed assistant director of research of the American Rolling Mill Co., Middletown, Ohio. He will be in charge of the physical science department of the Armco laboratories, and will take up his new responsibilities September 1. He has been one of the research consultants for this company for the past 18 months. Mr. Mehl received his B.S. degree at Franklin and Marshall College in 1919. He was successively research assistant in the department of chemistry at Princton University from 1920-22; proctor fellow in chemistry at Princeton, 1923; Ph.D. in chemistry in 1924 at Princeton; professor of chemistry and head of that department at Juniata College in 1923-25; national research fellow at Harvard University, 1925-27; and since September, 1927, superintendent of the physical metallurgy division of the Naval Research Laboratories, Washington, D. C.

RUSSIA TO ENTER MEXICO

NEW YORK, June 22.—Soviet interests are behind the formation of a new oil company at Tampico capitalized at $5,000,000, according to reports from Mexico City. The new company, it is reported, will market gasoline in Mexico at a price of 9 cents, Mexican, per liter, equal to 4½ cents United States. This is about half the current gasoline price in Mexico. The reports do not state whether the new company will produce and refine in Mexico, but it is believed that the new project will be merely a marketing organization, distributing Russian gasoline and other petroleum products.

FISHER GOVERNOR CO. CELEBRATES FIFTY YEARS OF BUSINESS SERVICE

The Fisher Governor Co., Inc., Marshalltown, Iowa, announces the completion of its first 50 years of service during this year and in commemoration of this event is starting several new projects, the principal one being the opening of a new branch factory in Los Angeles, Calif.

The company was formed as a partnership between William Fisher, the original inventor of the pump governor, and George Beebe and was incorporated as a company in 1881 and has been in continuous and successful operation since that date.

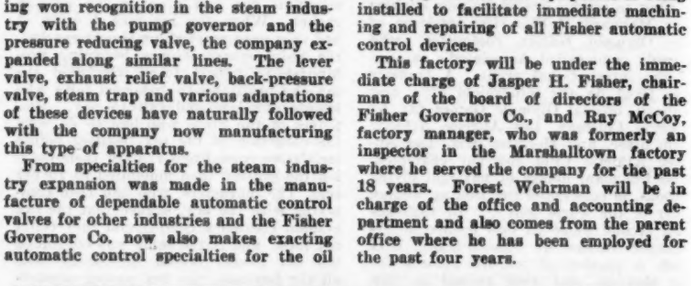
Its policy has always been to "build every specialty to exactly meet the conditions of the installation" and following this principle it has been constantly adding to its line of equipment. First having won recognition in the steam industry with the pump governor and the pressure reducing valve, the company expanded along similar lines. The lever valve, exhaust relief valve, back-pressure valve, steam trap and various adaptations of these devices have naturally followed with the company now manufacturing this type of apparatus.

From specialties for the steam industry expansion was made in the manufacture of dependable automatic control valves for other industries and the Fisher Governor Co. now also makes exacting automatic control specialties for the oil industry, gas industry, chemical field and many others.

Commemorating this fiftieth anniversary, the Fisher Governor Co. has issued a handsome brochure which gives a concise picture of the entire organization with special mention of the various departments of the organization and a description of its method of doing business. Photographs of the various buildings and offices are reproduced in this brochure together with a brief description of some of the company's many products. This brochure may be secured by writing the company at Marshalltown, Iowa, or applying to any of its many branch offices located in all parts of this country as well as in Canada and Mexico.

The new factory in Los Angeles will eventually carry a complete stock of Fisher specialties and equipment is being installed to facilitate immediate machining and repairing of all Fisher automatic control devices.

This factory will be under the immediate charge of Jasper H. Fisher, chairman of the board of directors of the Fisher Governor Co., and Ray McCoy, factory manager, who was formerly an inspector in the Marshalltown factory where he served the company for the past 18 years. Forest Wehrman will be in charge of the office and accounting department and also comes from the parent office where he has been employed for the past four years.



Main plant of Fisher Governor Co. in 1931.

DORR-OLIVER CORP. FORMED

John Van Nostrand Dorr and Edwin Letts Oliver have announced a union of the businesses and assets of the Dorr Co. and Oliver United Filters, Inc., through formation of the Dorr-Oliver Corp. under the joint management of Mr. Dorr and Mr. Oliver. The Dorr-Oliver Corp. will function through a new Dorr Co., Inc., and a new Oliver United Filters, Inc. Mr. Dorr and Mr. Oliver will head their respective companies and will continue the businesses which they initiated, organized and expanded. The Dorr Co.'s field is that of agitation, classification and sedimentation through its equipment, built up around the original inventions of its founder, John V. N. Dorr; and the Oliver United Filters, Inc., occupies a similar position in the field of filtration through the inventions of Edwin L. Oliver and E. J. Sweetland.

READING ANNOUNCES CHANGES

J. K. Aimer has been appointed assistant general manager of sales by the Reading Iron Co., with offices at 230 Park Avenue, New York, and W. S. Shiffer has been made assistant to the general manager of sales. R. I. Fretz has been transferred from the Reading district to the Pittsburgh district in place of Wyman Howells, who will direct activities of the Reading district. Harry L. Bialock has been appointed to the St. Louis district under the direction of J. L. Jacobson, district sales representative. L. C. Hartzell is under the direction of R. W. Thompson, Reading, in the promotion of nipple business. George D. Smith was appointed railroad salesman operating under the direction of Mr. Aimer. His activities will be confined to the East. E. S. Morehead was appointed to the Pittsburgh district under the direction of Mr. Fretz.

RUMANIAN OUTPUT UP

NEW YORK, June 22.—Production of crude petroleum in Rumania during April totaled 554,088 tons, against 551,011 tons in the previous month and 513,797 tons in April, 1930. Prahova continued the principal producing district in April, with 361,682 tons, against 395,994 tons in April last year, with Dambovitza second with 180,728 tons, as contrasted with 103,198 tons in the same month last year.

CLARK A. BROWNING DIES

TOLEDO, Ohio., June 22.—Clark A. Browning, organizer and president of the Dollar Savings Bank, died Sunday morning. Starting in the oil business in 1889, Otis A. and Clark A. Browning produced crude petroleum in Wood County. They owned large tracts of oil land and many leases, drilling some 150 wells, most of which were good producers.

RYAN OPENS OFFICE

A. B. Ryan, with the Hercules Supply Co. in Fort Worth, Tex., for the last three years, is now with the Houston Oil Field Material Co., Inc., with general offices in Houston, Tex. He has opened an office in the First National Bank Building, Fort Worth.

Late Fields

(Continued from Page 24)

discuss the daily allowable production from Oklahoma City Field during the next three months.

Champlin Oil & Refining Co. has opened its four wells in the Oklahoma City Field. The four wells are No. 1 Naden, No. 1 McCullip, No. 1 Seal and No. 2 Seal, all in Section 2-11-3w. Hall & Briscoe's No. 1 Muller, an offset to the Champlin Oil & Refining Co. lease, flowed wide open at approximately the same time.

Tom Slick Oil Co. and Stanolind Oil & Gas Co.'s No. 3 Kentzelman, SW cor. NE SW, Section 7-14-4, in the West Chandler Pool, in Lincoln County, was flowing 235 bbls. of oil an hour from the Wilcox sand at 5,004-26 feet. It extends production a quarter of a mile to the west.

KANSAS

A new oil test was announced on a block of 800 acres northwest of the Decker gas field in McPherson County, Kansas. Louis Gray and others' No. 1 Dixon, NW cor. SW Section 7-19-2w, was a location. The nearest production is to the south a half mile where the McPherson Oil & Gas Co.'s No. 1 Chindberg, was completed for 5,000,000 feet of gas a day and 80 bbls. of oil. The test is located between the Decker gas field and the old McPherson Field, and will be drilled to the Silicious lime if necessary.

Wolf Creek Oil Co. and others' No. 1 Dunsford, SE cor. SW Section 23-19-2w, in the southern part of the Decker gas field, in McPherson County, found 2,000,000 feet of gas and a showing of oil in the chat at 2,914-50 feet, where it was shut down. The operators have erected tankage and a separator and a production test is expected to be made in a few days.

Keyes Brothers Oil Co. and others' No. 1 Gregory, in SW cor. Section 23-16-9w, Ellsworth County, is a new wildcat location. The operators expect to start rigging up at the end of the week and should start drilling soon.

Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 2 Zerger, NE cor. SE Section 16-21-3w, is a new location in Voshell Pool, McPherson County, east of the same companies' No. 1 Zerger, which was recently completed for 600 bbls. of oil. It extended production a half mile south in the Voshell Pool.

E. K. Carey and The Texas Company's No. 1 Holt, C NW SE Section 13-19-2w, on the east side of the Decker gas field in McPherson County, found 4,000,000 feet of gas a day and a hole full of fluid from chat at 2,915-46 feet.

The semiwildcat test of Solar Oil Co. and others' No. 1 Zink, in Section 3-19-10w, Rice County, was nearing the pay horizons. It was drilling at 2,400 feet on the last report. The test is expected to be drilled to the Silicious lime if necessary.

The McPherson Oil & Gas Co. has two tests cemented on top of the chat in the Decker gas field. No. 2 Wallace, C NW SW Section 12-19-2w, found the top of the chat at 2,904 feet and has landed and cemented the 8-inch casing at 2,906 feet. The other test, No. 3 Giffin, C SE NW Section 14-19-2w, landed the 8-inch casing at 2,897 feet, after finding the top of the chat at 2,895 feet. Both of these tests are expected to be drilled into the chat formation in a few days.

TO PRODUCE LIGNITE OIL

WASHINGTON, D. C., June 20.—Production of motor fuel from lignite in several large new factories in Czechoslovakia will be attempted under an agreement between important banking and mining groups, according to a report to the Department of Commerce from Commercial Attache Sam E. Woods at Prague.

The total supply of lignite is estimated at 2,000,000,000 metric tons, and the annual output amounts to more than 20,000,000 tons.

REVISED CODE OF ETHICS NOW IN EFFECT CONTAINS MINOR CHANGES

The National Code of Practices for Marketing Refined Petroleum Products as amended by the Federal Trade Commission on June 15 contain a few changes from the original code authorized on July 25, 1929. It is expected that the revised code will soon receive the approval of the American Petroleum Institute and will continue effective in the new form. The Federal Trade Commission in its announcement on June 15, in effect, rescinded its action in February when it withdrew its original approval of practically all of the code rules.

Removed From Code

Several rules which were in the original code have been removed or changed in the revised form.

Rule 2 of Group 1 has been changed and transferred to Group 2 where it will be found as Rule 7.

The following provision of original Rule 4 has been removed: "No refiner, distributor, jobber or wholesaler shall knowingly induce, attempt to induce or assist a party to break an existing written contract for the sale of petroleum products between the party and another."

The following has been substituted for this provision which in the future will be known as Rule 3 of Group 1: "Maliciously inducing or attempting to induce the breach of existing contracts between competitors and their customers by any false or deceptive means whatsoever or interfering with or obstructing the performance of any such contractual duties or services by any such means, with the purpose and effect of unduly hampering, injuring or embarrassing competitors in their businesses, is an unfair trade practice."

The commission dropped Rule 7 of Group 2 which in its original form was as follows: "The selling of refined petroleum products below cost for the purpose of injuring a competitor and with the effect of lessening competition is an unfair trade practice." The following rule which in the future will be known as Rule 6 of Group 1 has been substituted: "The selling of goods below cost with the intent and with the effect of injuring a competitor and where the effect may be to substantially lessen competition or tend to create a monopoly or to unreasonably restrict trade, is an unfair trade practice."

Change Preamble

The following preamble of Group 2 rules was inserted by the commission: "The following rules of Group 2 are adopted by the conference and accepted by the Federal Trade Commission as expressions of the industry and each person signing these rules agrees that said rules shall not be carried out in such manner or used in any way so as to substantially lessen competition or unduly restrain trade or tend to create a monopoly."

The only change in Rule 7 which was formerly Rule 2 under Group 1 was the insertion of the word "secretly." This sentence of the rule now reads: "Such stations and/or sites shall not be acquired at one rental and then subleased or licensed at a reduced rental for the purpose of secretly rebating."

In Rule 14 of Group 2 the word "secret" has been inserted in the following sentence: "No seller shall make deviation from his posted prices (whether wholesale or retail) by means of secret rebates, allowances, bonuses, concessions, benefits, unusual credits, scrip books, or any plan, device, or other scheme which may directly or indirectly permit the buyer to obtain gasoline or kerosene at a lower net cost to him."

No change was made by the Federal Trade Commission in the lease and agency agreement. National distributors of lubricating oils recently appeared before the commission and endeavored to obtain a revision in this rule to prohibit the exclusive features of the lease and agency agreements. It is now a common practice for the lessee to agree to handle the products of the lessor exclusively and this had worked a hardship on certain companies distributing their branded lubricating oils through dealers.

JOHN O. DAILEY DIES

John O. Dailey, aged 56 years, production superintendent in the Bakersfield area of California for the Standard Oil Co. of California, died June 16 after an illness of about two months. He was well known throughout the oil industry in California and had been associated with the Standard Oil Co. of California for about 20 years. Following services at Whittier, Calif., the body was shipped to Cincinnati, Ohio, where interment was made this week. The deceased is survived by three brothers, Samuel T. Dailey, drilling contractor of Tulsa; and Homer and Charles Dailey of Los Angeles.

MICHAEL RICHMOND DIES

Michael Richmond, general line foreman of the Prairie Pipe Line Co., died Sunday, June 14, at his home in Galesburg, Ill. T. W. Holloway has been named his successor.

UNITED GAS CORPORATION FINANCING OPERATION

The next major financing operation of the United Gas Corp., the Wall Street Journal says, is likely to be undertaken through the sale of preferred stock on a customer-ownership basis, as the first step to be followed at the proper time by sale of first mortgage bonds against the whole property structure. That was the opinion expressed by Frederic A. Farrar, vice president of Electric Bond & Share Co., at the annual meeting of stockholders of the United Gas Corp.

Through such a financing program the company could liquidate its current indebtedness of more than $60,000,000, as well as any additional debt incurred in the meantime in continuance of development plans.

Mr. Farrar said the company is planning to start a survey of the territory where the companies in the United Gas system operate within a week or two, to determine the basis for a customer ownership campaign which will be laid out in the fall of this year.

Sidney Z. Mitchell, chairman of the United Gas board as well as that of Electric Bond & Share Co., presided at the meeting. He had before him a detailed outline of the company's progress since its inception, prepared by Ralph B. Feagin, president, and N. C. McGowen, vice president. Mr. Feagin discussed the corporate development of the system and its aims, while Mr. McGowen went into the details of the actual field operations.

OPPOSES MERGER TERMS

Commenting on reports that the Barneson interests were actively opposing the proposed merger between Standard Oil Co. of New York and Vacuum Oil Co., Lionel Barneson, now a member of the firm of Walsh, O'Connor & Barneson and formerly president of General Petroleum Corp., said he had personally advised friends and business associates who had asked his advice not to deposit their stock as assenting to a merger, as he personally did not think the one-for-three projected basis of exchange of shares an equitable one for the Standard stockholders. The Barneson interests, he said, would not be inclined to deposit their stock under the present arrangement.

GEOLOGIST SLAIN

HARLINGEN, Tex., June 20.—Refino Solis, 16 years old, a Mexican ranch hand, is held by police in Mier, Mexico, in connection with the fatal shooting of Kingsley C. Mitchell, 28-year-old assistant geologist of the Richmond Petroleum Co.

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 117)

UNION OIL CO. OF CALIFORNIA

Crude Oil Prices for Its Purchases at the Well for Crude Produced in Strict Accordance With the Production Allocations Made by the California Statewide Curtailment Committee Effective 7 a.m., June 20, 1931

(All gravities above those quoted take highest price for that field)

Gravity °A.P.I.	Signal Hill	Alamitos Heights Seal Beach	Huntington Beach	Athens Rosecrans Domingues	Torrance	Santa Fe Springs	Playa Del Rey*	E. Coyote Richfield	Montebello	Santa Paula	Orcutt	Coalinga	Lost Hills	McKittrick Kern River Sunset-Midway Elk Hills Buena Vista Hills	Gravity °A.P.I.
11-13.9	....	....	....	....	....	....	....	....	....	....	....	....	....	$.50	11-13.9
14-14.9	$.65	$.65	$.65	....	$.65	....	....	$.65	$.65	$.65	$.55	$.55	$.55	.55	14-14.9
15-15.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	15-15.9
16-16.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	16-16.9
17-17.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	17-17.9
18-18.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	18-18.9
19-19.9	.65	.65	.65	....	.65	....	$.65	.65	.65	.65	.55	.55	.55	.55	19-19.9
20-20.9	.65	.65	.65	....	.65	....	.65	.65	.65	.65	.56	.55	.55	.55	20-20.9
21-21.9	.65	.65	.65	....	.65	....	.66	.66	.65	.65	.57	.55	.57	.55	21-21.9
22-22.9	.65	.65	.65	....	.66	....	.67	.67	.65	.65	.59	.55	.59	.56	22-22.9
23-23.9	.67	.67	.67	....	.67	....	.68	.68	.65	.65	.61	.55	.60	.58	23-23.9
24-24.9	.69	.69	.69	$.69	.68	$.65	.69	.69	.65	.66	.62	.55	.62	.61	24-24.9
25-25.9	.71	.71	.71	.71	.70	.65	.70	.70	.65	.68	.65	.57	.64	.64	25-25.9
26-26.9	.73	.73	.73	.73	....	.65	....	.72	....	.70	.67	....	.66	.66	26-26.9
27-27.9	.75	.75	.75	.75	....	.68	....	.74	....	.72	....	....	.67	.68	27-27.9
28-28.9	.77	....	....	.77	....	.71	....	....	....	.74	....	....	.69	.71	28-28.9
29-29.9	.79	....	....	.79	....	.73	....	....	....	.76	....	....	.71	.74	29-29.9
30-30.9	.81	....	....	.81	....	.75	....	....	....	.78	....	....	.72	.76	30-30.9
31-31.9	....	....	....	.83	....	.78	....	....	....	....	....	....	....	....	31-31.9
32-32.9	....	....	....	.85	....	.80	....	....	....	....	....	....	....	....	32-32.9
33-33.9	....	....	....	.87	....	.83	....	....	....	....	....	....	....	....	33-33.9
34-34.9	....	....	....	.89	....	.85	....	....	....	....	....	....	....	....	34-34.9

*Subject to a gathering charge of 5 cents per barrel.

ROCKY MOUNTAIN AREA

(Continued from Page 45)

NE, Section 28-36n-12w, Milk River district, is drilling at 2,000 feet.

Teton County

The California Co.'s No. 1 Sullivan, NW NE NW, Section 34-27-7w, Bynum district, is drilling at 480 feet. Earl Oil Corp., Ltd.'s No. 1 Gad, SE cor. NE, Section 22-22-8w, Sun River district, is drilling at 2,700 feet. It topped the Kootenai formation at 2,450 feet.

Rosebud County

Prairie Oil & Gas Co.'s No. 1, Contract 4, SE SW SW, Section 28-11-39, Porcupine Dome, is bottomed at 1,360 feet and straightening hole, and its No. 1-X, Contract 3, NE SW NW, Section 26-10-39, is shut down at 2,415 feet waiting for motor parts.

Toole County

Oil Drillers, Ltd.'s No. 1 Farbo, NE SE SE, Section 3-37-4w, Border Field, is fishing for bailer at 1,635 feet, and the Askalta Oil Co.'s No. 1 Farbo, SE cor. NE, Section 2-37-4w, set casing at 175 feet and is drilling at 350 feet.

UTAH

Utah Southern Oil Co.'s No. 1 Balsey, C NE NE, Section 31-23s-21e, Salt Valley Dome, Grand County, which has one of the best shows of oil reported from a Utah wildcat for some time, is bottomed at 3,500 feet and making a thorough bailing test of the show encountered at 3,422 feet. One report says the bailing test is averaging 15 bbls. per day. Another is that 22 bbls. were bailed in 2½ hours. The oil was lowered 90 feet in this test. The crude is green of a paraffin base and tests 36.8 gravity A.P.I.

Runs From the Fields

Average daily pipe line runs in week ending June 20:

WYOMING	
Salt Creek	24,920
Big Muddy	1,840
Byron	10
Dallas-Derby	650
Dutton Creek	100
Elk Basin	740
Ferris	30
Frannie	900
Grass Creek	2,040
Hudson	310
LaBarge	1,120
Lance Creek	240
Lost Soldier	3,320
Lovell	....
Oregon Basin	1,440
Osage	1,290
Rock River	1,880
Poison Spider	170
Simpson Ridge	....
South Casper	570
Teapot	20
Warm Springs	....
Total Wyoming	41,500
MONTANA	
Buckley-Border	700
Cat Creek	1,000
Dry Creek	460
Kevin-Sunburst	4,420
Lake Basin	50
Pondera	1,480
Total Montana	8,110
COLORADO	
Florence	310
Fort Collins	1,000
Iles	1,460
Moffat	840
Orchard	350
Rangely	20
Tow Creek	340
Walden	150
Total Colorado	4,470
NEW MEXICO	
Rattlesnake	1,001
Hogback	430
Table Mesa	80
Artesia	985
Cap Rock	197
Getty	250
Hobbs	37,232
Jal	1,160
Lea City	2,445
Eunice	450
Texas-Pacific area	....
Total New Mexico	44,290
Total	98,370
Total previous week	99,353
Difference	983

YOUNG CADMAN IN TEXAS

Denys Cadman, second son of Sir John Cadman, chairman of the Anglo-Persian Oil Co., who is not yet 19 years of age, is acting as a scout in Texas for the Humble Oil Co. His elder brother, Basil, is at the Grangemouth refinery of Scottish Oils.

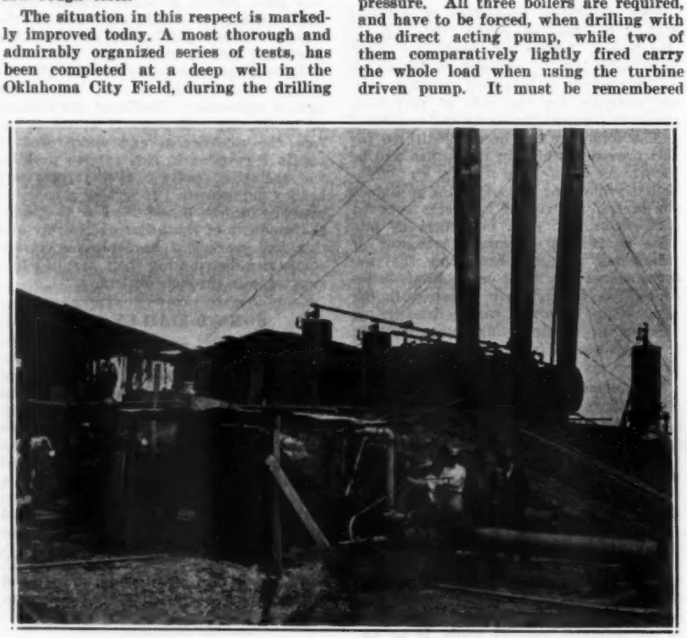
FUEL AND WATER CONSUMPTION REDUCED ON STEAM DRIVEN RIGS

By John T. Hayward
Consulting Engineer

In an article in the July 17, 1930, issue of The Oil and Gas Journal, a novel hook-up for steam driven rotaries was suggested for which large economies of fuel and water were predicted without sacrificing the flexibility or the many other advantages of steam.

In contrasting the steam consumption of the conventional arrangement and the proposed new layout, guesswork, handbook figures, and theoretical calculations, had, to a large extent, to be used, instead of actual data. Even for the regular rig, reliable actual figures for the separate steam requirements of the pumps and engine, were at that time unavailable, and calculations had to be based upon theory and figures obtained from a few rough tests.

The situation in this respect is markedly improved today. A most thorough and admirably organized series of tests, has been completed at a deep well in the Oklahoma City Field, during the drilling of which measurements were made of the actual consumption of the various operations and a large number of indicator cards taken. These tests were carried out under the auspices of the A.S.M.E. and a full report is to be published shortly. It will, it is believed, be of great value to the equipment manufacturers as well as to the operators. Until this report is released, it is not permissible to quote the figures but it may be mentioned that the main conclusions arrived at in the article in the July 17, 1930, issue of The Oil and Gas Journal have proved to be close to the truth.



Steam driven slush pump under test at Magnolia Petroleum Co.'s No. 1 Dave Hoffman well, Section 16-21n-2w, 7 miles west of Perry, Okla.

In the new hook-up proposed in the above mentioned article a power type of slush pump driven by means of a turbine using the steam expansively was substituted for the usual direct acting steam pump. This arrangement has recently been tried out at a well drilled to 5,000 feet in Perry, Okla., and the A.S.M.E. tests were extended to cover it. The installation at the well consisted of the regular drawworks and 12"x12" twin drilling engine, a 14½"x7½"x18" direct acting steam pump, and a 7"x20" power type slush pump driven by a 250-horsepower 3,600 r.p.m. single stage, single velocity impulse turbine. The power pump has incorporated in it a double reduction gear giving 46 r.p.m. at the crankshaft when the drive shaft is driven at 900 r.p.m., and is coupled through a double flexible coupling and 4 to 1 gear to the turbine. The small size of the drive, and compactness of the drive, can be clearly seen in the illustration.

The two pumps, the direct acting and the turbine driven, were run alternately for comparison during the drilling of the well. Continuous records were kept of the fuel and steam consumed and the mud fluid pressure at the bottom of the standpipe. Indicator cards were also taken on the fluid ends of both pumps, while the rate of circulation was measured by means of a weir, permitting the actual volumetric efficiencies to be arrived at without guesswork.

The predicted economies have been very largely confirmed and the fuel and water requirements of the new layout are not much more than half those of the ordinary rig. The boiler installation at the Perry well consists of three 125 horsepower boilers working at 230 pounds pressure. All three boilers are required, and have to be forced, when drilling with the direct acting pump, while two of them comparatively lightly fired carry the whole load when using the turbine driven pump. It must be remembered that this is under Mid-Continent drilling conditions with a pump manifold pressure of 600 pounds and large quantities circulated.

The combination of turbine and pump has given absolutely no mechanical trouble and is silent and free from vibration. Fears regarding trouble from water slugs have proved to be groundless although the boilers at this location are not fitted with superheaters, and the steam line slopes down all the way from the boiler domes to the turbine stop valve. Actually, of course, this type of installation is well adapted for use with superheated steam, as the turbine efficiency is considerably higher even with moderate superheat, and there is no lubrication trouble or expense for high temperature cylinder oil, the turbine not requiring any lubrication. The absence of lubricating oil in the exhaust has another advantage in as much that the exhaust can be partly condensed and returned to the boiler. To do this, the feed water may be sprayed directly into the turbine exhaust pipe, allowing all the boiler feed to be heated to any temperature that can be handled by the feed pumps.

Owing to the fact that the starting and stalling torque of the turbine is twice the full speed torque, high pump pressures can be put up when required, and the necessity of compounding avoided to a large extent. At the installation under discussion, with 250 pounds at the boiler, 1,500 pounds pressure can be put up by the pump, and this, or any lower pressure, can be held indefinitely, even with the pump completely stalled against a closed gate.

It is believed that the detailed report of the tests will prove to be of very great interest and the writer hopes to offer further comment when it is released for discussion.

APPOINT DR. PAULUS ASSISTANT MANAGER

(Continued from Page 113)

the Indiana company and all subsidiaries, in supervising the operations of refining plants at Whiting, Ind.; Wood River, Ill.; Sugar Creek, Mo., and in the Rocky Mountain region.

J. E. Rouse, who has been general superintendent of the plants at Casper, will succeed Doctor Paulus as manager of the Rocky Mountain division. Direction of operations of the plants at Casper, Greybull, Laramie, Glenrock and Florence will be under his immediate control after the date set for the changes. His position as general superintendent at Casper will be filled in turn by A. E. Thompson, who was recently appointed assistant general superintendent.

The promotions of the three Casper residents take them another step upward in the organization with which all have spent the larger part of their business careers. Doctor Paulus entered the employ of Standard of Indiana as a chemist in the Whiting refinery laboratory in 1915 after taking A.B. and Ph.D. degrees at Johns Hopkins University. After four years in laboratory work he was assigned to plant operation and placed in charge of the pressure still department. Later he was in charge of the crude still department.

Doctor Paulus was transferred to Casper in 1921 as assistant superintendent of the Midwest plant, which had then been taken over by the Indiana company so far as operation was concerned. In 1927 he became manager of the Rocky Mountain division.

Mr. Rouse is a native of the Rocky Mountain region, having been born in Denver. After graduation in mechanical engineering in 1913 from Brown University he was employed by the Standard Oil Co. of New Jersey at its Bayonne refinery until 1914. He was next associated with the Continental Oil Co. at Trinidad and Florence. In 1918 he became connected with the Midwest Refining Co. at Casper as superintendent of the lubricating department, and he continued with Standard of Indiana when that company took over Midwest. He was later promoted to assistant superintendent of Plant No. 3 at Casper, then superintendent of Plant No. 3, and finally to general superintendent of all Casper plants. His latest advancement makes him the company's leading manufacturing executive in the Rocky Mountain territory after July 1.

Mr. Thompson has the interesting distinction of belonging to a family whose members have to their credit a combined total of about 90 years of service with the Standard Oil Co. His father, Charles Thompson of Chicago, completed 40 years of service at the Whiting refinery in 1929 and is now on the company's retired list. Brothers, Alfred and Edward, are on the force now at Whiting.

The new general superintendent began his own service with the company in 1903 as a clerk in the pipe department at Whiting. In 1907 and 1908 he served as a storekeeper at Wood River, Ill., during the building of the refinery there. Returning to Whiting he became clerk and foreman in the mechanical and specialty departments.

In 1913 Mr. Thompson was transferred to Casper to aid in building the refinery, and his history since has been in connection with the operation of the Casper plants. He became assistant superintendent of Plants 1 and 2 in 1918, superintendent in 1920, and assistant general superintendent of all Casper plants only a few months ago. His appointment as general superintendent is the second promotion accorded him within a period of six months.

POTENTIAL AREAS OF NORTHEASTERN COLORADO

(Continued from Page 16)

tion to this well the agreement gives the Reiter-Foster Co. optional drilling rights for four other wells. The first well, now under way, is to be drilled to 7,250 feet unless oil or gas in commercial quantities is found at lesser depths. The agreement designated that a commercial well is one that encounters a saturated sand of at least 40 feet in thickness and produces an average of 500 bbls. a day over a period of 30 days, or 3,000,000 feet of gas per day under the same conditions. If and when commercial production as defined is found in the first well, the Platte Valley company agrees to assign to Reiter-Foster a one-half interest in the entire tract. Reiter-Foster is to pay all drilling costs, but will be reimbursed to the extent of 50 per cent out of production. Upon completion of the well, Reiter-Foster has the option to drill the additional four wells under the same terms and conditions, receiving a half interest in each tract upon the completion of a commercial well upon that particular tract. The tentative locations for these wells are: No. 1 Juhl, C NE SE Section 14-6n-61; No. 1 Wilson, C NW SW Section 19-6n-60; No. 1 W. A. Wilson, C NW NE Section 30-6n-60; and No. 1 W. A. Wilson, C NE NW Section 29-6n-60.

The Reiter-Foster company has a call on the oil and gas production from the Platte Valley holdings in Sections 13, 24 and 25-6n-61 and Sections 18, 19 and 30-6n-61, with the exception of the discovery well, the production of which is under contract to the Continental Oil Co. This call on production is of special interest as the company is affiliated with the Eastern Colorado Gas Co., which has franchises for natural gas in a number of towns in that part of the state. The agreement also gives the Reiter-Foster company the right to a proportionate ownership in any refinery which may be constructed, and also provides for a unit operation of the six sections involved in the agreement. Subsequently the Reiter-Foster company acquired the Behring tract of 320 acres in Section 23, immediately to the west of the section upon which the discovery well is located. Paul Ache, president of the Reiter-Foster company, is not a stranger to this territory. His company has an interest in the Fort Morgan test being drilled by the Indian Territory Illuminating Oil Co., and also in the Hiawatha gas field in Moffat County.

The Continental Oil Co., which last December put into operation a new refinery at Denver, has holdings on the Greasewood Dome almost equal in area to those controlled by the Platte Valley company.

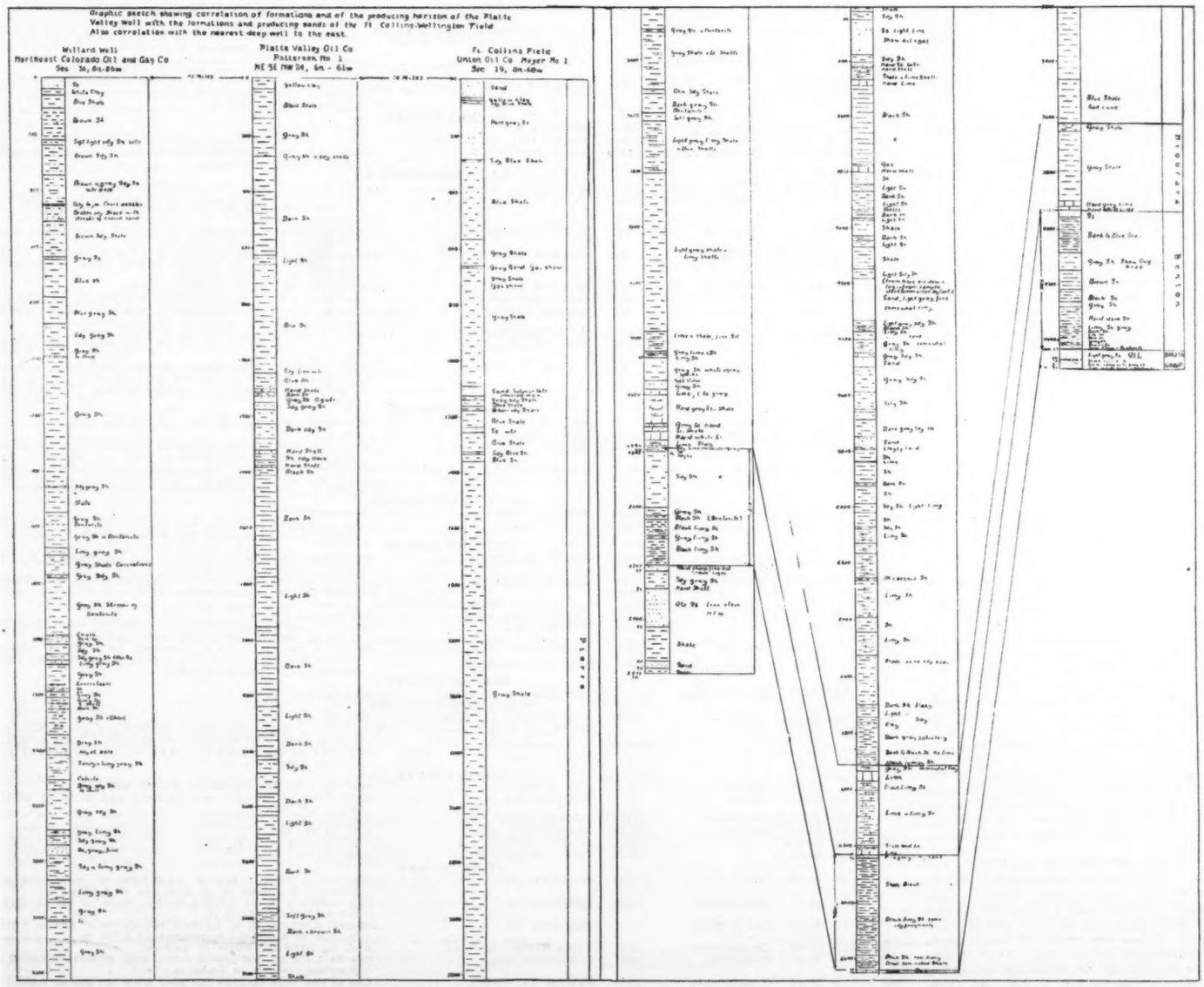
GEOLOGIC FORMATIONS IN NORTHEASTERN COLORADO

	Feet	
Quarternary—gravel, sand and alluvium	0-100	
Unconformity.		
Tertiary—gravel, sand and clay	10-300	
Unconformity.		
Cretaceous:		
Laramie formation—sandstone, shale and coal	200-800	
Fox hills formation—sandstone and shale	400-1,800	
Pierre shale:		
Dark shale with some beds of sandstone	1,500-6,000	
Shale with many sandstone lenses	1,275±	
Richard sandstone member	0-70	
Sandy shale	100-200	
Larimer sandstone member	0-150	
Sandy shale	0-170	4,500-10,000
Rocky Ridge sandstone member	0-165	
Sandy shale	300-600	
Terry sandstone member	0-20	
Sandy shale	200-400	
Hygiene sandstone member	0-100	
Dark shale and sandy shale	2,400-3,100	
Niobrara formation:		
Limestone and limy shale	330-410	
Bentone shale:		590-640
Upper sandstone member (the so-called "Nio-Benton" of some geologists)	10-20	
Dark shale, limestone and bentonite	580-620	
Dakota formation:		
Upper sandstone member (Muddy sand of drillers)	30-80	
Dark shale	110-240	
Middle sandstone member	10-15	315-425
Sandy shale	25-65	
Lower sandstone member	35-75	

Cost of Wells

Drilling in the Greasewood area is expected to be almost entirely with rotary equipment. The cost for the earlier wells is expected to run from $125,000 to $140,000. After the formations are better understood it is believed these costs will be reduced and that it will be possible to complete a well in 70 days, drilling in with rotary bit and using only one string of casing. The test now under way will, however, be drilled in with cable tools.

An estimate furnished by one contractor gives an indication of the cost of a well. It provided for a combination steel rig with a 122-foot derrick, 24-inch base, A.P.I. specifications, with a working load


Graphic sketch showing correlation of formations and of the producing horizon of the Platte Valley well with the formations and producing sands of the Ft Collins-Wellington Field
Also correlation with the nearest deep well to the east.
Willard Well
Northeast Colorado Oil and Gas Co
Sec 36, 6n-65w
Platte Valley Oil Co
Patterson No 1
NE SE NW 24, 6n - 61w
Ft. Collins Field
Union Oil Co Meyer No 1
Sec 19, 6n-68w

Logs of wells in northeastern Colorado.

of 424,000 pounds. The items are as follows:

Rig	$2,147.18
Miscellaneous lumber	1,000.00
Casing	19,304.28
Fuel	6,000.00
Water	5,000.00
Drayage	2,400.00
Drilling contractor, $79,200 plus $18,000	97,200.00
Total	$133,051.46

The casing record provides for outside diameter casing, A.P.I. specifications, comprising 50 feet of 50-pound 16-inch; 4,500 feet of 40-pound 9-inch; and 6,600 feet of 26-pound 6⅝-inch.

Water for rotaries probably will have to be piped from irrigation reservoirs in the district as indications point to water wells not yielding a sufficient supply. The test now drilling obtains its water from Jackson Lake.

Another Important Test

An important test that is expected to yield additional information on the area is the Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, in Morgan County, on the Fort Morgan anticline. It spudded in March, 1930, before the Greasewood well came in, but had unusual difficulties with the casing. The 8¼-inch froze at 3,650 feet and had to be cemented at that depth and it was impossible to land the 6⅝-inch on bottom. It has been standing at a total depth of 4,090 feet for some months fighting these troubles, but a rotary outfit has been installed and drilling again is under way. This well is 25 miles to the southeast of the Greasewood well.

The Greasewood well is 50 miles to the southeast of the Wellington Dome, the nearest producing field, and 36 miles to the southwest of the Willard well drilled several years ago by the Northeastern Colorado Oil Co. on Section 36-8n-55, the nearest test that explored the horizons expected to be productive at Greasewood. Drillers' logs of the Willard well and of a well at Wellington, and also the Platte Valley well are given herewith.

Geologic Formations

The geologic formations in northeastern Colorado as reported by the United States Geological Survey in its press memorandum of October 21, 1924, are given in the accompanying table.

Some slight modifications as to thickness of formations was made in the detailed report subsequently published as Bulletin 796-B and the table was extended to include formations below the Dakota. The logs of the Greasewood and Willard wells, drilled since the report was published, give additional information as to the thickness of the formations. Dr. W. Z. Miller, of Tulsa, geologist for the Reiter-Foster company, in response to a request, comments on the conditions as follows:

Geologist's View

"The base of the Niobrara is a distinctive horizon in this country and was found in the Platte Valley well at 6,234 feet depth. From the base of the Niobrara to the top (or Muddy) sand of the Dakota group in the Willard well the records show 417 feet interval. In the Platte Valley well the oil was encountered at 6,640 feet depth, or 406 feet below the base of the Niobrara. This puts the oil horizon very close to where the top of the Muddy sand of the Dakota group would be normally expected in so far as the correlation with the Willard well goes. This interval of 400 to 425 feet between the base of the Niobrara and the top of the Dakota holds pretty constant over wide areas in eastern Colorado and western Kansas, as shown by the well records and surface sections. Along the mountain front, however, the interval is somewhat greater. Everything considered the consensus among oil men and geologists familiar with the region is that the discovery well is in the top of the Muddy horizon of the Dakota group.

"In the Willard well good sands appear in the Dakota group from 5,207 to 5,595 feet (total depth). Here the top sand is 20 feet thick followed by 65 feet of sandy shale and then 130 feet of thick sand. Below this comes 125 feet of shale with another 25-foot sand. At Fort Collins and along the mountain front the Dakota group is 350 to 400 feet thick with the upper sand averaging around 45 to 60 feet. Good sand bodies may therefore be expected for the next 350 feet below the present depth of the Platte Valley well. Below the Dakota is the Morrison and Sundance averaging about 400 feet in this general area. Permo-Triassic red beds may be expected at 7,400 to 7,500 feet depth. Good marine Pennsylvanian beds were encountered in the Phillips well, south of Wray, Section 3-2s-42w, at 4,320 feet depth, or 1,880 feet below the top of the Dakota. This would put the Pennsylvanian in the Platte Valley well at around 8,500 feet depth. Along the mountain front the interval from the top of the Dakota to the Pennsylvanian is somewhat less and steadily decreases to the southward. In this latitude along the mountain front the interval is around 1,500 feet according to measurements by Willis Lee. The minimum expectation of the Pennsylvanian then would be around 8,200 feet and the maximum 8,500 feet depth in the area of the Platte Valley and Reiter-Foster wells.

Potential Area

"The Platte Valley and Reiter-Foster tests lie in the area of outcrop of the Fox Hills formation of Cretaceous age. Workable outcrops are poorly exposed around the wells, especially to the south and west, but work carried over a wide area to the east and north indicates that these tests are on the south side of a large structural feature with a general northwest-southeast trend. Just how much area will be productive in this vicinity neither I nor likely any other geologist would care to predict at the present stage of development, but, the way the production has held up under none too favorable operating conditions argues well for the area. The results of this test certainly opens a large scope of country as potential oil and gas territory and the high quality of the oil will furnish an incentive for extensive exploration in eastern Colorado. There is now and will continue to be a ready market for this crude and the high freight differential will enable oil produced in this area to more than hold its own with Mid-Continent and East Texas crudes."

ENGINEER VISITS MID-CONTINENT

W. R. Layne, petroleum pumping engineer for Byron Jackson Co., of Berkeley, Calif., is making a two weeks' business trip in the Mid-Continent territory.

IN EAST TEXAS

R. C. Stamets, of Tulsa, division manager of the tubular goods department of the Oil Well Supply Co., is spending about a week in the East Texas area.

OLD WELLS DRILLED IN EASTERN COLORADO

Location	District or structure	Date	Company—	Remarks—
ADAMS COUNTY				
24- 3s-67	Denver-Aurora	1912-14	Mid-Colorado Oil & Gas Co.	Abd. at 3,790 ft.; several shows of gas in shale and a show of oil in shale at 3,472-85 ft.
NW SE 1- 2s-63	East Lake	1926	Municipal Oil, Inc.	Abd. at 275 ft.; no test; top of Pierre shale at 50 ft.
NW NE 28- 3s-64	Watkins	1923	Eman Oil Corp.	Abd. at 1,090 ft.; water in sand in Foxhills at 981-1,002 ft.
35-3s-66		1917	W. L. Jameson	Some oil at 430-55 ft.; second show at 827-55 ft.; ran out of hole; abd.
SE 28-3s-64	Watkins	1924	Eman Oil Corp.	Stopped in calcite and wax at 1,819 ft.; had several shows of oil.
ARAPAHOE COUNTY				
NW SW 11- 4s-58	Deertrail	1926	H. H. Temple	Abd. at 1,200 ft.; top Pierre shale at 50 ft.
S half 11- 5s-60	Deertrail	1925	A. R. Forster	Abd. at 1,150 ft. in water sand.
34- 3s-67	Sable	1913	Unknown	Abd. 3 ft. of coal at 260 ft.; 5 ft. of coal at 480 ft.; water sand at 800 ft.; show of oil at 1,000 ft.; artesian water at 1,100 ft.
1- 5s-65	Salem	1925	A. A. Rollestone	Abd. at 1,650 ft.; water in sand in Foxhills.
SW SW 17- 5s-64	Hog Ranch	1925	A. A. Rollestone	Abd. at 2,315 ft.; water from sand in Foxhills at 1,395 ft. rose 400 ft.
NE SE 21- 4s-67	Aurora	1929	H. Brown Cannon	Abd. 790 ft. in water sand.
CHEYENNE COUNTY				
14s-44	Cheyenne Wells		U. P. Railroad	Abd. at 1,579 ft.; show of gas at 1,380-1,410 ft.; show of oil at 1,410-1,510 ft.; show of gas at 1,510-60 ft.; oil saturated black shale at 1,560-79 ft.
35-16s-49	Eads-Haswell		Milt Thompson Well	Reported as having considerable amount of inflammable gas at a horizon just below the Carlyle sand.
NE SE 19-16s-49	Rush Creek	1928	Standard Oil of California	Abd. at 5,060 ft.; water in Dakota at 1,190-1,270 ft.; cut several thin sandstones, had some oil showings; cut 40-ft. sand at 3,885 ft.
ELBERT COUNTY				
SE 17-10s-61	Simla	1926	White Oil	Total depth 510 ft.
SE NE 4- 6s-59	Deertrail	1926	Trader Oil	Abd. at 915 ft. in water sand; oil shows at 60 and 100 ft.
SE NE 4- 6s-59	Deertrail	1869	Union Pacific R.R.	Reported abd. at 799 ft. with 400 ft. of oil in hole from sand; drilled for water.
EL PASO COUNTY				
11-12s-63	Colorado Springs		Peyton Oil & Gas	Abd. at 700 ft.; not deep enough to test Dakota.
11-14s-66	Colorado Springs	1922	P. S. Griffith et al.	Abd. at 2,950 ft.; had colors of oil at 1,400-11 ft., show of oil in thin sand at 2,600 ft., show of oil in 42 ft. of sand at 1,900 ft.
7-17s-64	Fountain	1922	Colorado Thrift Oil	Abd. at 3,020 ft. with water in Dakota sand; small show of gas at 1,020 and 1,400 ft.
26-17s-65	Pueblo	1922	Wigwam Oil	Abd. at 2,410 ft.; light shows of oil at 530 ft. and at 760 ft. and in sand at 1,248 ft. and at 1,818 ft.; show of oil and gas at 1,876-1,928 ft.
35-17s-65	Wigwam	1922	Wigwam Oil	Abd. at 1,820 ft.; no shows reported.
SW SW 19-17s-67	Red Creek	1925	Red Creek Oil	Lost hole at 2,675 ft.; skidded rig and drilling second hole.
17-17s-64	Fountain	1925	Christy Oil	Abd. at 3,081 ft. in water sand in Morrison; topped Muddy sand at 2,745 ft.; water in Dakota.
SW SE 9-12s-62	Calhan	1926	A. A. Rollestone	Abd. at 4,605 ft. in unidentified water sand.
SW NE 17-16s-65		1926	Ohio Oil	Abd. at 3,010 ft.; water in Dakota sands; top Lakota at 2,955 ft.
NW NW 27-16s-65	Buttes	1927	Phillips Petroleum	Abd. at 3,570 ft.; top Dakota formation at 2,621 ft., sand at 2,645 ft.; out of Dakota at 2,750 ft.; horizon dry; Lakota at 2,826-84 ft., water bearing; top Morrison at 2,884 ft.
KIOWA COUNTY				
1-18s-49	Eads		Ballard Well	Had gas just below Carlyle sand; depth unknown.
36-17s-49	Eads	1918	Allied Oil	Abd. at 750 ft.
NE 31-18s-51		1926	Mineral Exploration	Four-foot sand in top of Dakota at 1,173 ft.; show of oil and water; abd. at 1,221 ft.
NW NW 18-20s-46	Eads	1926	Nee-No-Shee Oil	Ran out of hole and abd. at 4,090 ft.; first Dakota, 710-820 ft.; second Dakota, 829-60 ft.; third Dakota, 980-1,019 ft.; salt at 1,803-2,013 ft.; bottom red beds 3,330 ft.
KIT CARSON COUNTY				
32- 2s-49	Flagler	1918	Five Fields Oil	Abd. at 900 ft.
3- 9s-51	Flagler	1918-20	H. A. Rispin	Abd. at 3,920 ft.; Dakota sand at 3,515-3,815 ft. contained water; hole stopped 100 ft. in the Morrison sand.
LINCOLN COUNTY				
10-14s-53	Hugo	1919	Lincoln County O. & D.	Shut down at 2,650 ft.; trying to get somebody to drill it 200 ft. deeper to test Dakota.
NW NW 33-17s-57	Walker Hill	1921	Midwest Refining	Abd. at 3,804 ft. with 1,800 ft. of water in the hole; small show of gas at 2,150 ft.
LOGAN COUNTY				
4- 8n-49	Fleming		Rogers farm well	Total depth 423 ft.
34-10n-52	Padroni	1917	Sterling Oil	Abd. at 4,350 ft.; show of gas at 2,100 ft.; show of oil at 2,700 ft. and at 3,400 ft., show oil and gas.
SW SW 36- 8n-55	Willard	1927	Northeastern Colorado O. & G.	Show of gas at 3,250 ft. through 3,000 ft. of water; topped Dakota at 5,203 ft.; Lakota at 5,550-75 ft.; abd. at 5,612 ft.; top sand was dry.
MORGAN COUNTY				
16- 3n-58	Fort Morgan		Fort Morgan Oil & Gas	Abd. at 1,250 ft.
WASHINGTON COUNTY				
10- 2n-52	Akron	1920	(Associated Oil, Franks et al)	Abd. at 1,510 ft.
2- 2n-53	Akron		Akron Oil & Gas	Abd. at 4,399 ft.; log shows oil and gas at 1,103-20 ft. and at 1,935-2,045 ft.; show oil at 2,149 ft. and at 2,154 ft. and at 2,284-2,478 ft.; show of gas at 4,017-43 ft. and at 4,085-4,155 ft.
WELD COUNTY				
5n-65	Greeley		City of Greeley	Abd. at 2,260 ft.; log shows gas at bottom.
13- 7n-61	Keota		Midnight Oil	Shut down at 900 ft.; said to have had show of oil in March of 1922.
24- 9n-57	Stoneham	1923	Pawnee Butte Oil	Abd. at 1,965 ft.
33-11n-61	Grover	1918-21	Grover Oil & Gas	Abd. at 945 ft.
NE NW 30- 4n-68		1924	Panuco Explo.	Abd. at 1,900 ft.
NW NE 4- 4n-68		1926	California Oil Prod.	Abd. at 1,740 ft.
YUMA COUNTY				
14- 2s-43	Black Wolf	1923	Midfields Oil	Abd. at 2,779 ft.; gas at 1,490-1,600 ft. estimated at 2,000,000 ft.; show of oil and gas at 2,400-60 ft.
17- 2s-43	Black Wolf	1923	Midfields Oil	Gas 2,000,000 ft. at 1,600-1,700 ft.; show of oil at 2,400 ft.; total depth 2,539 ft.
17- 2s-43	Black Wolf		Midfields Oil	Gasser, 3,000,000 ft. at 1,620-90 ft.; shows of gas at 1,280 ft. and at 1,426 ft.; completed at 1,750 ft.
SE SE 11- 1n-44	Trapshooter	1927	Yuma Valley Oil	Abd. at 3,275 ft., water in Dakota.
NW NW 28- 2s-43	Arickaree	1924	Continental Oil	Gas at 1,475 ft., not commercial; abd. at 2,885 ft. in the Morrison; water in Dakotas.
NW NW 3- 2s-42	Rosenkrantz	1930	Phillips Petroleum	Top of red beds at 3,005 ft.; abd. 4,905 ft.; gas at 1,470-78 ft.; water sands at 2,475-2,520, 2,760-2,820, 3,315-20, 4,236-61, 4,323-45, 4,840-50 and 4,902-05 ft.

EAST TEXAS MAKES A NEW PIPE LINE RECORD

(Continued from Page 13)

nections will not be able to find room in these lines. If such a situation arises, there may be a far greater amount of new pipe line building than that which already has taken place. This, of course may prove unfavorable to the pipe line companies in that the life of the field may be greatly curtailed by salt water intrusion, possibly resulting in many of these lines being left without sufficient production before a great length of time.

A number of companies with lines already in operation are not anxious to buy oil, some having withdrawn from the market entirely. Most of the companies will run the oil of others if a market has been provided but generally they are trying to take care of their own production and are not in a position to make any additional connections.

Contrasted With West Texas

The amount of pipe line construction which has been accomplished in East Texas to provide the record outlet capacity is in sharp contrast with that which has been done for other districts, ntoably West Texas. Although 13 lines have been laid or are under construction having a total daily capacity of around 550,000 bbls. daily, only approximately 1,150 miles of pipe, including looping have been required. In West Texas 10 lines with a capacity of 375,000 bbls. were built up, 3 of these alone required more pipe than all the East Texas line. That, of course, was due to the fact that the West Texas fields were located many miles from any main lines and long distances from markets.

A comparison of the amount of pipe line construction resulting from several of the more important developments in Texas is shown in an accompanying table. East Texas leads the list with West Texas second, the Mexia-Powell-Corsicana district third, Ranger and Burkburnett fourth and the Panhandle fifth.

Plenty of Outlet

What effect the present large crude outlet capacity of East Texas will have on production allowances remains to be seen. Including the 550,000 bbls. pipe line outlet, tank car movements and local refinery demand, there will be an estimated crude outlet capacity of around 800,000 bbls. daily by September 1. Under the latest proration order issued by the State Railroad Commission the district was allowed only 160,000 bbls. daily. This order has not been enforced, as is known, and the field has been producing between 300,000 and 350,000 bbls. daily, which also is under the rated outlet capacity. A plan now is being put into effect for a trial, limiting production to 300 bbls. per 20-acre unit, and under this the allowable production of East Texas would be between 210,000 and 225,000 bbls. daily, or very materially under what can be moved out of the field if there is a market for the oil.

Production allowances in other fields of the State under the present proration plan usually have been approximately the equivalent of the outlet capacity as based on "nominations" of various pipe line companies and other established buyers at the opening of a given proration period. If that practice should be applied to East Texas it would mean that within the next few months, when all pipe line facilities at present under construction will be completed, that East Texas nominations might total 550,000 bbls. for the pipe line outlets alone. The nominations of the pipe line companies, however, are based on the market requirements of these companies rather than on the pipe line capacity but if other buyers should desire to nominate, the pipe line companies would be required to run the oil ratably up to the capacity of the lines. Thus the facilities already provided or being provided, leave a way open for East Texas production to be increased to above 800,000 bbls. daily if the market can dispose of oil to the amount of the outlet capacity. If the district is restricted to below that figure it will mean that some of the facilities will not be able to operate at capacity, which of course, will lower the returns on the amount of investment in these facilities, and the greater the extent to which production is curtailed the greater the unused outlet capacity.

SUMMARY OF PIPE LINES IN TEXAS FIELDS

District—	No. of lines	Cap. (bbls.)
East Texas	13	550,000
West Texas	*10	375,000
Panhandle	4	140,000
Mexia-Powell-Corsicana	7	†200,000
N. Tex. (Ranger-Burkburnett)	6	200,000

*Includes Illinois Pipe Line Co.'s 8 and 10-inch lines which connect with Humble Pipe Line Co. at Lytle Station. †Present pipe line capacity out of this district approximately 375,000 bbls.

LEGAL ASPECTS OF GAS CONSERVATION

(Continued from Page 17)

cerned with the conservation of oil and gas and may, therefore, regulate the operations of one or both to prevent waste.

Function of Gas

The function of gas in the production of oil has been the subject of intensive study during the last few years. It is now realized that most fields are termed depleted because of exhaustion of the gas pressure and not because of the exhaustion of the oil. Engineers have worked out splendid methods for utilizing the gas in securing the maximum recovery of oil, but many of these methods ignore property lines and the rights of landowners under established laws, as well as neglect the fact that gas is a commodity and has a value in addition to that of producing oil.

For the purposes of this discussion, let us assume a typical oil pool of fair size in which there is, at the top of an anticlinal structure or dome, a considerable amount of free gas in contact with the oil-saturated sands along the flanks. The oil, in turn, is in contact with water. The gas, oil and water are, under such assumption, in the same porous formation but take their respective positions in accordance with differences in specific gravity. The reservoir pressure is high, consequently there is a considerable amount of gas dissolved in the oil. Under certain conditions, some of the gas may also exist as a liquid. The dissolved and liquefied gas make the oil less viscous so that it passes freely through the sands. The field is cut into many separately owned tracts. If a well be drilled to the oil horizon, the equilibrium in the reservoir is disturbed because an area of low pressure exists at the well bore. The gas which is in solution expands and thereby moves toward the well. This movement carries oil with it, partly by actually pushing it through the pores in the sand and partly by transporting it as a film around the gas bubbles. Since the pressure differential is great, and the sand at the well bore is fully saturated so that oil and gas need move but a short distance, the well flows at first without difficulty. In time the drainage area increases and the oil and gas must move longer distances and overcome more resistance, therefore more energy is required to move the oil through the sands to the well, and eventually the well stops flowing. Since gas is the prime factor in moving the oil, and since it lowers the viscosity, obviously such gas should not be dissipated or be called upon to do unnecessary work.

The time element also enters into the problem. Usually the oil sands are not uniform in texture. There are tight areas and loose areas. Gas and oil seek the lines of least resistance, establishing drainage channels and, since gas is more mobile than oil, there is a tendency of the gas to bypass the oil. If the wells in the pool are permitted to produce rapidly or, let us say, to capacity, the gas energy does its work only partially with respect to the oil encountered in the more permeable areas and it is exhausted without expelling more than a small part of the oil from the less permeable portions of the reservoir. By use of back pressure, the rate of flow can be regulated to prevent excessive bypassing and to give the gas the opportunity to move the oil from the tighter areas. Again it is obvious that the ultimate recovery of oil will be increased by conserving and properly using the gas energy. Gas which is improvidently used by one operator necessarily reduces the amount which is available to other operators in the field.

Gas-Oil Ratio

If the entire field could be operated as a unit, and nothing but engineering problems were involved, the solutions would be comparatively simple. One must consider, however, the rights of the various landowners. One must also take into account the right of the state to regulate operations, either by exercise of police power to prevent waste, or by requiring one person to so use his property as not to injure his neighbor. Without exception, the courts have held that the state has the power to regulate operations in order to prevent waste of oil and gas. The difficulty lies in the application of the principle to individual leases. In fields where the gas energy is the prime force in moving the oil, it would seem that conservation of both oil and gas would be effected by conducting operations in such manner as to use a minimum amount of gas for each barrel of oil produced. Pressure, as well as volume, must be considered, therefore true efficiency means getting the maximum amount of work out of each cubic foot of gas. Each well is, however, a separate problem requiring rather extended experiments to determine its proper gas-oil ratio, and what may be a proper ratio today may, in a few weeks, be an improper one. It is apparent that no general ratio can be fixed even for one field and that adequate regulation by the state would require an army of employes.

The situation is further complicated when the production, with the use of a proper gas-oil ratio, is in excess of the market demands. Whenever production exceeds the market demand, then some producers will be unable to dispose of all of their oil and must store it, if able to construct storage, or must reduce production and thus cause unequal withdrawals and perhaps upset the efficient gas-oil ratio. In either event waste would take place. California was the pioneer in undertaking to effect by law conservation by the gas-oil ratio method. Only fair results were obtained largely because of tremendous administrative difficulties. Such law has recently been repealed. Apparently, the new law embodies the fundamental principles of the laws of Oklahoma, Kansas and Texas. Such states have, in the face of overproduction, elected to reduce production to market demands by the method of proration, endeavoring at the same time to enforce the most efficient operations of each lease when restricted to the allowable production. Necessarily a fair amount of discretion must be left to the operator so that he may, in reducing production to the allowable, make experiments on the wells and work out the most efficient operations possible under the circumstances.

Enjoining Waste

If state regulation be absent, it is indeed a problem to adjust the rights of the various operators. There are cases decided under common law to the effect that an operator who wilfully permits gas to escape, thereby injuring his neighbor, may be enjoined and must pay the damages occasioned[1]. Such cases support the contention that, whenever an operator dissipates the gas energy of a pool by using an excess amount of gas or by using the gas too rapidly, he injures his neighbor and, to some extent, every operator in the pool. If such injury exists, it is the result of a wilful act and is caused by improper or careless operations, and it seems logical to say that the injured operators have a cause of action for injunction and damages. Such a suit could be maintained, irrespective of the right of the defandant to disobey, as in Texas, a proration order by virtue of filing suit or securing an injunction against the railroad commission. At first blush it would appear that such a rule conflicts with the established law that the remedy of the adjoining operator, to protect against drainage, is to drill offset wells. It is believed, however, that the drainage rule should be limited only

[1]See Hague vs. Wheeler, 27 Atl. 714, 22 L.R.A. 141; Mfg. Co. vs. Indiana Co., 57 N. E. (Ind.) 912, 50 L.R.A. 768; Louisville Co. vs. Kentucky Co., 77 S. W. (Ky.) 368, 70 L.R.A. 558; Higgins Co. vs. Guaranty Co., 82 So. (La.) 206, 5 A.L.R. 411.

SUMMARY OF EAST TEXAS PIPE LINES

Company—	Field terminus	Destination	Route	Connection	Size inches	Length miles	Cap. bbls. daily	Remarks
Atlas Pipe Line Co.	Longview	Shreveport	Direct line		8	57	30,000	In operation.
Arkansas Pipe Line Co.	Longview	Shreveport	Direct line		8	66	30,000	In operation.
Gulf Pipe Line Co.	Kilgore-Joiner	Port Arthur	N. Texas trunk	Arp	6–8	17	45,000	In operation.
Humble Pipe Line Co.	Joiner	Webster	N. Texas trunk	Groesbeck	8	80	45,000	Original line only 33 miles to Boggy Creek from where company already had 8-inch line to Groesbeck. Looping under way an entire line.
Humble Pipe Line Co.	Kilgore	Baton Rouge	Van-La. trunk	Longview	8	13	25,000	Line from Louisiana state line operated by Standard Pipe Line Co., connecting with Baton Rouge trunk at Moores Station (Shreveport).
Humble Pipe Line Co.	Longview	Baton Rouge	Van-La. trunk	Shreveport	10	65	50,000	Parallels Van trunk line Longview to Moores Station.
Magnolia Pipe Line Co.	Longview-Kilgore	Beaumont	N. La.-Beaumont	Center	10	59	40,000	In operation.
Magnolia Pipe Line Co.	Kilgore	Beaumont	N. Tex-Beaumont	Corsicana	12	95	50,000	Under construction.
Liberty Pipe Line Co.	Kilgore	Smiths Bluff	Pure-Van line	Rusk Station	8	45	20,000	Under construction.
Shell Pipe Line Co.	Longview	Houston	Direct line		10	200	50,000	Surveys completed. Line to be completed Sept. 1.
Sinclair-Texas Pipe Line Co.	Joiner	Coffeyville, Kans.	Prairie-Pure	Colonels St. / Huffman / Konova St.	12	129	60,000	Includes 88 miles from Joiner to Colonels Station (Mexia), Prairie-Pure line; 28 miles Huffman Station, Prairie-Pure line to Sinco refinery; 13 miles Konova Station, Prairie line, to McCloud Station, Sinclair Oklahoma City-Coffeyville line.
Sun Pipe Line Co.-Yount Lee	Longview	Beaumont	Direct line		10	190	45,000	Under construction.
Texas Pipe Line Co.	Gladewater	Port Arthur	N. La.-Port Arthur / N. Tex.-Port Arthur	Douglass-San Augustine / Douglass-Corsicana	8–10	62	60,000	In operation. 30,000 bbls. routed Douglass-San Augustine-Port Arthur and 20,000 bbls. Douglass-Corsicana-Humble-Port Arthur.

Note—Proposed 12-inch line of Shamrock Pipe Line Co. to Gulf Coast at Houston not included as plans only tentative.

to drainage caused by proper operations. The complaining operators, and indeed they may be royalty owners as well, would seek an injunction or damages, not on the ground of drainage, which simply means taking oil or gas from wells on one tract instead of on another and not on the ground that a proration order was being violated, but on the principle that the dissipation of the gas energy is occasioned by negligent operations and causes a waste of oil which cannot be recovered at all. If the complaining operators should be required to adopt the same methods of production as the operator who is dissipating the gas energy, then the dissipation and waste would simply be aggravated, not cured.

The impression is rather general in Texas that an operator who files a suit to test the validity of a proration order, and especially one who gets an injunction restraining the enforcement of an order, may, until the Supreme Court has acted, produce as he pleases. It is true that there may be no liability for the statutory penalty, but surely such operator cannot commit waste thereby ignoring waste statutes. Furthermore, it is very doubtful whether the suit relieves the operator from damages for drainage of oil and gas from his neighbor's lands. If, for instance, one operator obeys the order, producing only his allowable, while his neighbor, who has filed suit, produces 10 times his allowable, surely drainage takes place. If the proration order be held valid, it seems logical to say that the operator who has obeyed the order has a cause of action against the operator who has disobeyed it and drained oil and gas from his neighbor's lands. The recent case of Peterson v. Grayce Oil Co., 37 S.W. (2d) 367, is an interesting one in this connection.

In most oil-producing states laws have been passed prohibiting waste. Certainly waste and dissipation of gas energy, which materially reduce the ultimate recovery of oil, are included in the general term "waste." Such a law fixes the duties of the operators, even if they did not exist at common law. It is believed, however, that, irrespective of such laws, all operators who can show injury by dissipation and waste of gas energy have a cause of action against the offending operator. The statutory law is simply declarative of the common law and also gives power to the state to prevent waste as a conservation measure for the benefit of the public at large. It is believed that a cause of action, based on waste or dissipation of gas energy which causes a waste of oil, exists in jurisdictions where the ownership in place rule applies as well as those jurisdictions holding to the nonownership rule. Certainly as much protection should be given to a man who is said to have title as to one who simply has an undivided interest.

Title to Force of Nature

Indeed, whatever may be the rule as to ownership of a tangible thing, like oil or gas, there is some doubt as to whether a landowner can have title to a force of nature. At most he has a right, in common with others, to use such force. The water drive and the gas energy of an oil pool are forces of nature which, if properly controlled, are valuable assets in securing the maximum recovery of oil. However, if they are dissipated or improperly used, they become destructive agencies and reduce materially the recovery from the pool to the damage of other operators and the state as a whole. Time does not permit the discussion of water encroachment incident to improper operations and improvident use of the gas energy, nor does time permit discussion of waste which occurs by failing to control and efficiently apply the water drive of a pool. It is sufficient to say that water is always a hazard and may do great harm if not controlled.

In the typical pool, which we have assumed to exist, there is a large area of free gas above the oil. Wells drilled at the crest of the structure will produce nothing but gas. Some wells down structure go through the gas and then into the oil sands. The free gas in the structure is an important factor with reference to the recovery of the oil. If undisturbed, it prevents the oil from rising into the dry, unsaturated sands, and tends to hold in solution the gas which is dissolved in the oil. If this free gas be produced in material quantities, the pressure is necessarily lowered and such reduction in pressure releases gas which has been dissolved in the oil thereby increasing the viscosity of the oil so that less energy is available to move it and more energy is required than before because the oil now has a higher viscosity. Again, the production of dry gas, by reducing the pressure in the reservoir, permits the oil level to rise so that the oil saturates the dry gas sands and only an insignificant part of it can ever be recovered. Great waste of oil occurs. The practice of blowing gas wells in the hope of pulling oil into the gas sand and thus eventually producing some oil, or at least some rich gas, is extremely wasteful.

The dry gas in the pool has a value as a commodity quite apart from its function in maintaining the reservoir pressure. Some landowners in our theoretical pool have properties which will produce nothing but gas. Under present laws, they may produce such gas irrespective of the fact that the lowering of the pressure materially reduces the ultimate recovery of oil. Certainly the owners of gas wells should not, without compensation, be required to shut in their wells for the benefit of the owners of the oil-producing lands. On the other hand, it seems unfortunate that great waste of oil should be permitted to occur because of the production of the free gas.

Laws Need Overhauling

That we are concerned with conservation, in a period of enormous overproduction, seems a paradox. But, whatever the cause, it is clear that our present laws and methods of production need considerable overhauling and adjustment. The valuable function of gas in the production of oil is now fairly well understood. The courts and legislatures must find a way to reconcile conflicting property rights and interests to the end that each owner of oil and gas may receive his fair and just share of the minerals or the value thereof, and not be permitted to operate in such manner as to injure his neighbors and destroy a large percentage of an irreplaceable natural resource.

Some of the evils, with suggested remedies, have already been pointed out. After all they do not reach the fundamental difficulties. Treating the pool as a unit, and operating it as such, irrespective of property lines, seems to be the best method so far suggested to effect real conservation and protect property rights. Geologists and petroleum engineers can, with fair accuracy, even in the earlier stages of development, determine the limits of the pool and the proportionate interest which each landowner has therein. It is believed that before very long pools will be operated as a unit, either under compulsion by action of the state[2], or by voluntary agreement[3], perhaps by the formation of a huge corporation in which the owners of the mineral estates will be the stockholders. The opinion seems to be justified that such a plan of operation will not only conserve oil and gas but will materially increase the income to the owners of the minerals, and will, no doubt, bring much needed stabilization to an industry which is in great distress.

[2]See paper, "Compulsory Unit Operation of Oil Pools," by W. P. Z. German, presented before the petroleum division, American Institute of Mining and Metallurgical Engineers, New York, February 19, 1931.

[3]Recommended and declared to be legal by the Federal Oil Conservation Board in Section 5 of its report to the President transmitted May 28, 1930.

NEW GOVERNOR STATION

The Kansas City Gas Co. is erecting a governor station at Thirty-ninth and Terrace Streets, Kansas City, Mo. The station will be a one-story brick building with tiled roof, 44x20 feet. This station will improve the service by giving the required pressure as it is needed in various parts of the city.

EXPORT OUTLOOK FOR LAST HALF OF 1931

(Continued from Page 14)

had supplanted Russia as the principal supplier of motor fuel and other products to the Spanish market, and it was indicated that the Soviet would receive virtually all of Spain's petroleum business, including much of that held by three large export groups. Recent reports, however, have indicated that there has been a decided reaction in Spain against this close tie-up with the Soviet, and cables during the past week or so have indicated a strong drift toward the United States as a principal supplier of refined products to the Spanish Monopoly's petroleum requirements. Definite news on the final outcome of the Spanish business is still lacking at this writing.

Export Situation

One of the strongest factors indicating that the major American companies have not adopted a "we surrender" attitude toward export markets for American petroleum is the continuance by these major groups of the Export Petroleum Association, Inc. This organization, formed a few years ago to endeavor to rationalize American export trade in petroleum and products, withdrew from active participation in the export market in November last year, and was expected at that time to dissolve. While the association has made no public announcement of its plans recently, it is reported that its corporate existence has been, and will be, continued and that while it is not functioning actively as a dominating and controlling factor in the export situation, its members are retaining their affiliation, and it is thought now that plans have been made whereby the association will reenter the export picture at the first favorable moment, and that its program when it does resume its activity will be such as to enlist the support of the entire industry in a determined fight to hold American export markets against foreign aggression from any source. Member companies of the export association include Standard Oil Export Corp. (Standard of New Jersey); Atlantic Refining, Cities Service, Continental Oil, Gulf Oil, Pure Oil, Richfield, Shell Union, Sinclair Consolidated, Standard Oil of California, Standard Oil of Indiana, Texas Corp., Tide Water Associated, Union Oil of California, and Vacuum Oil Co.

In some quarters of the export trade the view is held that ultimate solution of the export problem for the American oil industry will be achieved through a close working arrangement between the Export Petroleum Association (in modified form, taking in the entire American Petroleum industry) and the Royal Dutch-Shell group headed by Sir Henri Deterding. Sir Henri is an avowed opponent of the Soviet, and companies under its management have waged a determined campaign against Soviet oil in many world markets, although not always with success.

An export alliance taking in the dominant American companies, and in co-operation with the Royal Dutch-Shell group, would line up virtually the entire world petroleum industry outside of Russia into one group, and an organization of this type, it is felt, is the only one which could launch a world-wide oil campaign against the Soviet with any real chance of success.

While no immediate indication of a world combine of this sort is in evidence, and there is no likelihood of such a development affecting the export trend in this country in the near future, many in the trade are of the opinion that conditions in the industry are steadily shaping toward such an end.

Summing up the outlook for export business for the closing half of 1931, it may safely be said that the trade as a whole views the outlook from a gallonage standpoint with considerable optimism and real confidence, although, as previously pointed out, this is merely sentiment and there are few definite facts to go on. There are growing indications, however, that many exporting companies which have remained in the background and witnessed their foreign outlets slipping away are now determined to regain these markets, and that the last half of 1931 will witness sharper competition and greater gallonage than has fallen to the lot of the American oil exporting trade in the six months' period just ending.

POOR MATERIAL, UNDUE HASTE, CAUSE ACCIDENTS

(Continued from Page 14)

this load of impact or the shock to the structure due to the sudden stopping and starting of the string will be so severe as to wreck the derrick if it is not built of the best material.

In this accident it appears that the crownblock was pulled through the top of the derrick and landed along with the traveling block and lines in a tangled mass upon the derrick floor and drawworks. The damage done will cost more than the difference in cost between an A.P.I. specification steel derrick suitable for this kind of work and the wooden rig used and where operators have come through their drilling operations without trouble it has been due more to good luck than good judgment.

The engineers of the industry know what can be used with safety in every operation and there is no justification for the use of cheap and dangerous equipment of any kind, and this is another phase of the East Texas oil boom that should have the careful attention of the safety directors for the Labor Department of the Texas Railroad Commission.

It is fully realized that these directors are doing all they can to prevent accidents in that field and a recent survey of the area by other safety engineers revealed conditions there that are appaling when viewed from the known requirements of good practice and it seems that many companies who have followed good safety rules in other fields have thrown all precautions aside in their East Texas operations merely for the sake of quick results and cheap operation.

Conditions can and should be changed and men should not be required to take unnecessary chances in developing a pool at this time that in every way is a menace to the industry and if safe practice entails the expenditure of money in excess of the present possible returns due to the low price of oil it is another strong argument in favor of the application of more common sense to the development of this field, for in the long run someone must pay for carelessness.

DEMAND FOR SPECIAL SESSION IN TEXAS

(Continued from Page 13)

East Texas Field shall be upon the following basis:

"(a) For the purpose of this plan, the East Texas Field, and all leases in said field, shall be considered as composed of units of 20 acres, and each such unit shall be permitted to produce 300 bbls. per day of 24 hours, provided, however, that all wells in said field, completed and producing on the effective date of this order, shall be permited a production of 300 bbls. per day per well, irrespective of the size of the tract upon which such well is located.

"(b) Provided, however, that where any such tract is of 20 acres in area, not more than 600 bbls. per day shall be produced therefrom, irrespective of the number of wells.

"(c) And provided, however, that any operator in said field shall have the right to produce from a single tract under common fee ownership, by well or wells drilled thereon, the full quantity of oil to which his number of units may and fractional units entitle him, however, not more than five units of 20 acres each may be allocated to any one well.

"If, however, the lease of such operator shall be offset by a well or wells, on a similar unit, or units, such operator shall not be permitted to produce from his offset well a quantity in excess of 300 bbls. per day for each such offset

well, and the remainder of the quantity to which his units entitle him shall be made up from wells drilled within the body of said lease and remote from the boundary line of said lease.

"Rule 3 (a). No subdivision of any lease so as to create tracts of less than 20 acres, made after the effective date of order of the railroad commission of May 1, 1931, and no assignment of less than 20 acres made after said date shall be considered in determining the allowable production hereunder, but the allowable production allocated to such lease shall be upon the basis of 300 bbls. per 20 acres in accordance with the subdivision which existed May 1, 1931.

"(b) If, on May 1, 1931, any lease was owned by more than one person in undivided interests, and such ownership is shown by an instrument of record before said date, and subsequent to said date there has been, or shall be, a partition in kind to the respective owners, the provisions of Subparagraph (a) of this Rule 3 shall not apply.

"Rule 4. The commission shall constitute a field representative, or umpire, who shall have charge of the administration and enforcement of these rules in said field. Producers and royalty owners in said field are authorized to constitute an advisory committee composed of one representative from each such producer and each royalty owner for the purpose of working in co-operation with the railroad commission and its umpire in carrying out the details of the administering of these rules. Such committee may constitute a smaller number of representatives therefrom as an executive committee to act for it in such co-operation with the railroad commission and its umpire."

Trying the Cranfill Plan

A ten-day trial of the Cranfill plan went into effect June 20, and while the majority of producers, in fact practically all of them, are agreeing to abide by the plan and have signified intentions of co-operating in an effort to work out a permanent curtailment plan for the district, one major operating company in the field, the Arkansas Fuel Oil Co., has asked for an injunction against the Railroad Commission to prevent it from prorating its properties. This company has been abiding by the plan which was formerly put into effect in the Lathrop or Gregg County area, and says that it does not intend to run its wells open now, but that it will not abide by the Cranfill plan.

Capt. J. F. Lucey, oil producer and chairman of the arbitration committee of seven, although not one of the framers of the Cranfill plan, desires to see it tried out for the time being; then if it does not prove successful, he says he is ready to see some other plan put into effect. His committee of seven is now meeting with representatives of the Arkansas Fuel Oil Co. seeking to arbitrate with that company and gain its co-operation in trying the new plan.

Carl Estes, leader of the East Texans, and the first to obtain an injunction against the Railroad Commission to prevent it from prorating certain properties in which he had an interest, has withdrawn that suit in the interests of the new plan which he has been strongly favoring.

The Attorney-General's department at Austin has made no statement in regard to the legality of the new plan, which is considered by many as impractical because of many alleged illegal aspects in its recommendations, and the Railroad Commission has not voiced its approval or disapproval, although some of the members of the commission are anxious to see some plan tried out in the district that will please the majority of the operators, and work for the curtailment of the district. The commission cannot lawfully adopt any rule or regulation without first granting a hearing upon 10 days' notice to all interested parties, and as the next hearing will not be held until June 29 the commission will merely "stand by" to watch the procedure of those recommending the new plan, and the spirit in which it is taken by all operators in the district, and the co-operation given in trying to carry out the plan.

Governor a Conservationist

The governor has voiced his opinion that everyone should co-operate in the efforts to conserve the crude oil and gas reserves of the State, and hoped that the Cranfill plan would be given a fair trial, signifying to a certain extent that no special session of the legislature would be called for the purpose of discussing proration, until the 10-day plan was up, and the plan either proved satisfactory or unsatisfactory.

If the plan fails such failure will lend weight to the first plan of proration of the Railroad Commission, and will also strengthen the position of the advocates of a special session of the legislature, which in particular is the Texas Oil Emergency Committee. This committee criticizes the Cranfill plan as illegal and impractical, and will continue to fight for a special session of the legislature to obtain legislation which will give the Railroad Commission power to make its orders effective. Failure of the Cranfill plan will make a special session more urgent than previously, and in case the plan fails it will have had one good influence, that of bringing things to a head probably much sooner than other recommendations, organization or meetings would have done, and will have shown the fallacy of all other possible plans except ones which will give the Railroad Commission full power to enforce rules and regulations already laid down, and which have been partly in force in the East Texas district. Consequently it will hurry the governor to act in calling such a special session to obtain needed legislation as advocated by many operators in the State.

Plan Revised

One of the main objections to the Cranfill plan was that it specified no limits of production on large leases, but this objection has been removed by revisions adopted which specify limitation of 1,500 bbls. daily on a well regardless of the size of the lease on which it is drilled.

At a meeting held in Longview June 18 by operators, producers and purchasers, the majority favored adopting the Cranfill plan, the majority of "violators" in the fields also favoring the plan. One of the proration umpires located in the district stated that the operators were showing a spirit of unusual co-operation under the plan, some of them pinching in their wells a couple of days prior to the day set for shutting them in.

The common agreement at the Tyler meeting on June 15 was that production of the entire district would be pinched at 10 a. m., June 20, although several operators were allowed until 7 a. m. June 26, pending completion of arrangements to abide by the agreement.

Fifteen Cents Per Barrel

Oil in the East Texas district has been selling for 10 and 15 cents per barrel since the Humble Oil & Refining Co., Arkansas Fuel Oil Co., The Texas Company and Tidal Refining Co. withdrew their postings two weeks ago, but the latest posting made by one of the main purchasers and pipe line companies serving the district, Magnolia Petroleum Co., may react to help stabilize the blasted market in the district, especially if it is followed by other purchasers. The new posting made by this company, effective at 7 a.m., June 20, is 20 cents.

Discussing Unitization

The Stanolind Oil & Gas Co. and Simms Oil Co., which owns several hundred acres jointly in the East Texas district, the Continental Oil Co. and Atlantic Oil Producing Co. are negotiating to unitize approximately 1,000 acres in northern Gregg and southern Upshur Counties, drawing up plans similar to those used in the Van Pool, which will designate one company to operate the entire block for the four associates. The acreage lies on the Flewellan farm in the M. Mann Survey which is on both sides of the county line.

This will be the first unitized block in the new district if the plan is consummated, and may prove the forerunner of several or even many such unitized blocks, due to the fact that producing oil in the district at 10 cents per barrel will be a losing proposition to the majority of operators, especially the smaller operators. Pooling their acreage for production purposes would consequently act as a curtailment measure, for it would necessarily cut down the number of wells, would cut down expense, and would place the operators in better position to take care of the large amount of salt water which will give the producers the largest problem they have ever faced in their many years of operating various leases.

Shortage of Drilling Water

Lack of water for drilling purposes has also entered into the many problems of producing in the East Texas district, and pooling of acreage by operators and companies would help to overcome this added difficulty. Some companies and operators are purchasing water rights, and lakes from the farmers, and many water wells are being drilled for water supply, and unless drilling activities are curtailed, or blocks unitized, the water shortage may assume serious proportions which will automatically curtail activities in the district.

DEVELOPMENTS IN USE OF LIQUEFIED GAS

(Continued from Page 114)

the Pacific Coast—by our company in 1918, at the Moore Dry-Dock & Shipbuilding Co. plant, in Oakland, Calif. Subsequently 21 battleships, tenders and other vessels scrapped by the General Metal Supply Co., of Oakland, were dismantled with our equipment using city gas and oxygen.

" 'With the development of liquefied petroleum gas, such as Calol, further strides have been made in the design and construction of cutting torches, and today numerous large industrial organizations on the Pacific Coast, such as the Columbia Steel Corp. and the Southern Pacific Co., are using our apparatus, together with Calol and oxygen, for metal cutting.'

"The 'Calol' mentioned by Mr. Mathy is Calol cutting gas, recently perfected and introduced to the metal-cutting industry by the Standard Oil Co. of California, by whom it is marketed—the company's trucks deliver this liquefied petroleum gas in steel cylinders wherever Standard Oil trucks go. It vaporizes the instant it is released, and is used with oxygen just the same as other cutting fuels.

"Steel cylinders are supplied and hold about 775 cubic feet of Calol cutting gas—enough for eight average working days. One such cylinder outlasts from 6 to 10 medium-sized acetylene tanks, yet a full cylinder of Calol weighs but 209 pounds as against a shipping weight of 230 pounds for acetylene. The metal cutter gets 2,000,000 B.t.u. in Calol cutting gas as against 450,000 B.t.u. in the acetylene cylinder and 80,000 in the hydrogen tank. Calol cutting gas cuts haulage charges and delays on the job."

INCREASING STATE TAX PROVING BOOMERANG

(Continued from Page 119)

small decrease or no decrease at all. In Kansas, where the rate of tax is 3 cents per gallon, according to information furnished by Seth E. Wells, state inspector of oils and collector of gasoline tax, there was a decrease of 8 per cent. In Missouri, where the rate is .2 cents per gallon, according to information furnished by Harry A. Perriguey, state inspector of oils and collector of gasoline tax, there was a decrease in collection of $4,480, but there were uncollected items in his hands which when realized on will make the 1931 collection for the month of April equal the 1930 collection. We, therefore, have only a slight decrease in Kansas, which has a fairly reasonable tax of 3 cents per gallon, of 8 per cent and no decrease in Missouri, but a decrease in Oklahoma, on the basis of the old tax, of approximately 28 per cent. From this it would seem that the decrease in Oklahoma cannot be attributed to any great extent to economic depression, but must be credited to gasoline tax evasion and the prohibitive effect of the tax itself.

The highway construction program of the State Highway Commission, and of the counties, is seriously endangered by this large decrease in the gasoline tax collection. At the present rate of decrease, there will be nearly $3,000,000 less for road construction by the State and counties in the State for the year 1931. This means a great slowing up of highway construction during this year.

The arguments in opposition to the tax increase did not prevent the temporary increase, but finally state officials and members of the legislature began to see the light and were convinced that a tax so burdensome could not, as in the case of a small tax, enforce itself, but an additional measure must be adopted to help it, so, in the last days of the session, the legislature passed a gasoline tax enforcement act and placed the collection of the tax in the hands of the newly created State Tax Commission. The question which now confronts the commission is, can it, even with the additional appropriation and force provided for in this bill, collect the tax and recover the revenue now being lost by an unwise law which violated every fundamental of taxation by increasing the tax to an unreasonable and exorbitant figure? If the State Tax Commission fails, the whole highway program is imperiled, and the entire revenue is likewise imperiled, for if present conditions are permitted to continue the tax evader will take all the business and there will be no taxpayers or revenue left.

Somewhat similar conditions developed in California. Investigation there showed there were large concerns which had never paid any gasoline tax; that they had lived and pulled down and destroyed their competitors by tax evasion. In the first quarter of 1931 alone there was more than $1,250,000 of reported gasoline tax delinquent. This resulted in a new law, and there was no delinquency of reported gasoline tax during the first month this law was in effect. But this does not say there was no tax evasion, because there may have been many instances in which the tax was not reported. The responsible marketers throughout California are so thoroughly convinced tax evasion still continues they have organized a research bureau which devotes itself to ferreting out gasoline tax evasions and furnishing the information to the State. If the Oklahoma Tax Commission fails in performing its functions in collecting the gasoline tax, ferreting out tax evasion, an organization similar to the California organization is the only hope remaining for the legitimate marketers in Oklahoma.

TANK WAGON CHANGES

(Continued from Page 118)

posted a general advance of 5½ cents in its wholesale and retail prices.

Standard Oil Co. of Louisiana reduced the gasoline tank wagon and station prices one-half cent throughout Louisiana, Tennessee and Arkansas on June 17 except in New Orleans, La., and Memphis, Tenn.

Standard Oil Co. (Kentucky) advanced the gasoline tank wagon and station prices to 19 and 20 cents in Pensacola, Fla.

Standard Oil Co. of Ohio reduced the gasoline and kerosene tank wagon and station prices 1 cent on June 18.

Atlantic Refining Co. reduced the gasoline tank wagon and station prices 1 cent in Pennsylvania and Delaware June 15.

LARGE RUSSIAN REFINERY

NEW YORK, June 19.—Azneft Oil Trust has started the construction of a large new refinery, with annual capacity of 500,000 tons, at Bielgorod. The new plant will be finished late this year. The capacity of the Bielgorod refinery, when completed and in operation, will be equal to the aggregate refining output of all of the refineries at Baku, reports from Europe state.

Old Timer Says—

"USE PARMACO CONICAL SLEEVE GAS ANCHOR PACKER"

Look for the Orange and Black Label

PARKERSBURG MACHINE CO.

PARKERSBURG, W. VA.

The House of Courteous Service

CONSIDERABLE BUILDING IN THE MOUNTAIN STATES

(Continued from Page 113)

expected to run at present a much smaller quantity. It will recover the gasoline and kerosene. The still was purchased in Denver and was trucked out in a 5-ton truck and trailer which will be used to haul crude to the plant. S. G. Zickler, formerly with the Continental Oil Co.'s refinery at Glenrock, will be superintendent. Some of these interests are identified with a similar project at Glenrock which refines the crude from a single well and retails it to auto travellers along the main highway at a good profit.

In New Mexico, the Phillips Petroleum Co. recently closed down its gasoline plant at Artesia on account of the low price of casinghead gasoline. The plant was erected in 1926. The Ohio Oil Co. withdrew as a purchaser of Artesia crude several months ago and turned back to the New Mexico Pipe Line Co. the leased line which was operated by the Illinois Pipe Line Co. Several local independent operators are endeavoring to solve the problem of a market for their crude by constructing refineries. The Desert Refining Co., Gray Coggin and associates, are ready to begin operating a small plant on the Grayburg Oil Co.'s lease 23 miles east of Artesia, and the Malco Refineries, Inc., financed by the Maljamar Oil & Gas Co., has purchased a site for a refinery in Artesia on property formerly owned by the Phillips Petroleum Co. The plant is being built by the Southwestern Engineering Corp., of Los Angeles, and will be ready for erection in 30 to 60 days. It will have a capacity of 1,500 bbls. daily, but will not be operated at capacity at first. The output will be marketed under the trade mark of Malco products.

A. C. Grandbouche, of Denver, and associates, are reported organizing the Independent Oil & Refining Co. with plans for the erection of a refinery at Orchard, Colo. A site and a right of way for a pipe line from Greasewood are reported to have been acquired.

BETTER FEELING IN OKLAHOMA MARKET

(Continued from Page 12)

are selling the bulk of their fuel oil on contracts to buyers and they are getting from 50 to 75 per cent of the gasoline tank car price. The same situation applies to distillate and gas oil, the value of the latter products in the case of most refiners being determined by its utilization as charging stock for cracking units.

Buying crude oils on a gravity basis is entirely a reflection of various percentages of crude oil obtainable in a skimming operation. A few years ago when gasoline at Oklahoma refineries was selling at 8 to 10 cents per gallon with a tight market, differentials as high as 5 cents per barrel for each degree of gravity (A.P.I.) were paid.

In addition to low gasoline prices there have been other developments which have tended to decrease the importance of gravity as a barometer of crude values. Outstanding is the increased importance of knock rating in motor fuels which has increased the desirability of cracking in refinery operation.

In general, the higher the gravity of crude oil in the case of paraffin and mixed base crude oils, the lower the antiknock rating of the gasoline secured. Likewise most of the low gravity asphaltic or naphthene base crude oils, yield a gasoline in a skimming operation of exceptionally high knock rating.

This development has become so important that a few of the larger refiners are sacrificing yields and are skimming from their high gravity crude oils, a straightrun gasoline with a low endpoint. This material has a higher knock rating than the usual U. S. Motor cut from the same crude. The remainder of the gasoline or naphtha fraction is then cracked to secure a higher knock rating.

This trend has already developed to the point in the case of several companies where the refinery managements would prefer to operate their plants with lower gravity crude oils especially where it is necessary to pay a premium of from 1 to 3 cents for each degree of gravity. For instance in Oklahoma, with a 1-cent differential in effect with most purchases, refiners are paying from 5 to 10 cents per barrel for the high gravity Oklahoma City crude when compared with some of the lower gravity crude obtained from the older fields. The straightrun gasoline from the Oklahoma City crude oil has a relative low antiknock rating which means that the refiners must either sacrifice in prices or blend with cracked gasolines to secure a product meeting the usual requirements. Thus, the demand for antiknock gasoline and the perfection of cracking processes is tending to do away with differences in crude oil value based on gravity.

It is also pointed out that most of the high gravity paraffin base crude oils for which the highest prices have been made give a high cold test fuel oil and gas oil in a skimming operation. There is practically no demand for these high cold test products at present, so this situation has also tended to bring a flat price for all crudes. Most of the lower gravity crude oils including all of the asphaltic naphthene base oils give a low cold test fuel oil and gas oil in refinery processing.

Gasoline and Naphtha

The general price range on U. S. Motor gasoline in Oklahoma the first of the week was 2⅛ to 2½ cents. East Texas material was still quoted 2 cents for immediate shipment basis Oklahoma and in a few cases Oklahoma and North Texas refiners have met this price. East Texas refiners are centering their activities on export outlets and in the domestic end they are endeavoring to move as much material as possible to the southeastern states where they have a freight rate advantage over other Mid-Continent refiners except Arkansas and North Louisiana. Refiners in the latter two areas are suffering due to this development but it is tending to minimize importance of the new East Texas plants in the northern markets.

East Texas refiners are also quoting low prices for 400, 390 and 375 endpoint gasolines. There is very little domestic demand for the 390 and 375 endpoint grades but there is a fair demand for 400 endpoint in domestic channels provided an octane rating of 60 or better can be assured by the seller. In Oklahoma, the bulk of the 400 endpoint movement was at a low of 2⅜ cents. The 390 was nominally quoted at 2⅝ cents, 375 endpoint 2¾ cents, and 350 and 360 endpoints 2⅞ cents.

There has been some business placed for July delivery. A week ago 2½ cents appeared to be the low of the market on U. S. Motor for July delivery but during the past few days quotations of 2¼ cents are reported.

The naphtha market is not so active and prices are lower.

Kerosene

The kerosene situation has already been explained. East Texas kerosene including high gravity material is quoted as low as 2 cents basis Group 3. Most Oklahoma refiners are asking a low of 2⅛ cents for the 41-43 water white grade and 2¼ cents for the higher gravities.

Natural Gasoline

Natural gasoline was weaker in price last week but there was a better market on Monday and Tuesday. Grade A was scarce at 1⅞ to 2 cents. Grade AA, 1⅝ cents, Grades B and BB 1½ cents, and Grade C 1⅜ to 1½ cents. These prices could be shaded in Texas for export movement.

Fuels

No price changes were made in this week's quotations on the various grades of fuel oils. The supply continues to exceed the demand and considerable quantities are being run to storage but most refiners are refusing to make any more concessions in their quotations. When concessions are given there are few orders available. Refiners are now waiting to see what the late summer and fall industrial demand will be. Some are storing in expectation of cracking the fuel oil, later in the year.

The gas oil situation is similar to that of fuels. The demand is light but in Oklahoma there is no general disposition to force sales with lower quotations. East Texas gas oil has been quoted at five-eighths cent basis Oklahoma. Furnace oil distillate material is quoted at a low of 1¼ cents and a high of 1¾ cents depending on gravity, color, cold test and flash.

Lubricants

Sellers of bright stock, complain of Pennsylvania competition in northern business. The Pennsylvania refiners have an advantage in freight rates and their product is usually considered superior to the Mid-Continent stocks so they are getting some of the business that formerly went to Oklahoma manufacturers.

Although, the general market quotations on bright stocks and the better grades of neutral oils have not been changed, price cutting is common as it is in the compounded motor oils. The latter selling at 10 to 20 cents per quart at cut-rate stations throughout the Middle West and Southwest reflects the chaotic conditions in the tank car market.

OIL MAN'S CALENDAR

JUNE

22-26—Chicago, annual meeting, American Society for Testing Materials.

29-30—Chicago, National Association of Taxicab Owners.

AUGUST

10—Denver, Colo., Oil States Advisory Committee.

SEPTEMBER

1-8—Cleveland, Ohio, twentieth national aeronautic meeting, Society of Automotive Engineers.

16-18—Atlantic City, N. J., annual meeting, National Petroleum Association, Hotel Traymore.

28-29—Atlantic City, N. J., National Association of Motor Bus Operators, Hotel Ambassador.

OCTOBER

2-3—Houston, Tex., Petroleum Division, American Institute of Mining and Metallurgical Engineers.

12-16—Chicago, National Safety Council.

14-16—Pittsburgh, Pa., Society of Industrial Engineers.

NOVEMBER

10-12—Chicago, twelfth annual meeting, American Petroleum Institute, Stevens Hotel.

16-21—Pittsburgh, Pa., third International Conference on Bituminous Coal, Carnegie Institute.

DECEMBER

7-12—Atlantic City, N. J., Trade Show, Motor and Equipment—National Standard Parts Association.

28-31—Tulsa, Geological Society of America, Mayo Hotel.

GULF OIL CONCESSION IN COLOMBIA APPROVED

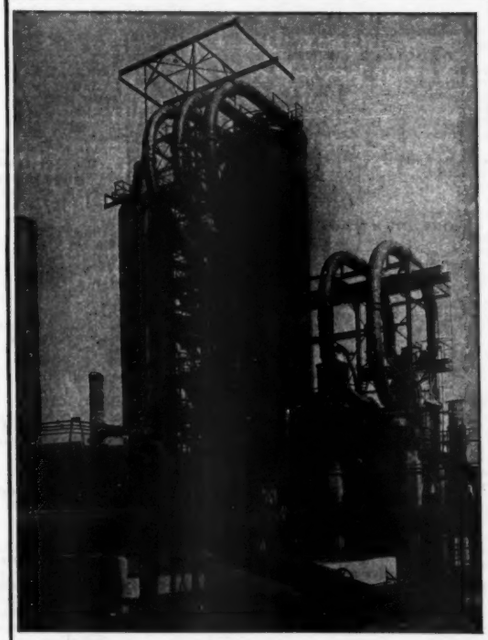
NEW YORK, June 22.—The Colombian Chamber of Deputies has approved the third reading of legislation providing for the exploitation of the Barco Concession by Gulf Oil Corp., and the measure, which has already received the approval of the senate, now goes to President Herrera for his signature.

The agreement provides that at least three-fourths of the employes engaged in development work on the Barco Concession shall be Colombians, and requires the construction by Gulf and its associates of a $25,000,000 pipe line connecting the field with tidewater.

The Colombian government is to receive 10 per cent royalty on all oil produced on the concession. Gulf has not yet indicated that it is prepared to go ahead with development of the Barco concessoin, and it is believed, in view of the current world depression in petroleum, that development work will be held back as long as possible.

GULF

Modern Methods Make Modern Gulf Products



the largest Atmospheric-Vacuum Still ever built.

Paraffine and Coastal Crudes

Gasoline · Lubricating Oils

Naphtha · Gas · Oils

Wax · Petroleum Coke

Cylinder · Engine · Cordage

GULF REFINING COMPANY

General Sales Offices: PITTSBURGH, PA.

Detailed Operations in All Fields for Month of May 1931

SUMMARY OF ALL FIELDS

Wells Completed

	Comp.	Prod.	Dry	Gas
Eastern	127	376	17	62
Central Ohio	49	359	10	31
Lima	10	107	2	5
Indiana	18	625	10	4
Michigan	9	601	6	1
Kentucky	18	660	8	5
Illinois	3	0	3	0
Tennessee	3	0	0	3
Kansas	41	13,569	14	8
Oklahoma	65	34,742	36	12
North Central Tex.	112	3,660	70	17
East Central Texas	286	116,183	31	0
E. Tex. Gas Field	3	0	3	0
West Texas	28	4,562	14	0
Texas Panhandle	23	1,695	1	12
Gulf Coast	81	25,513	41	1
Southwest Texas	64	1,852	45	6
North Louisiana	25	2,553	11	9
Arkansas	8	250	7	0
Mississippi	7	0	6	1
Montana	4	21	2	1
Wyoming	4	150	2	0
Colorado	0	0	0	0
New Mexico	2	0	2	0
Utah	1	0	1	0
Total May	991	227,475	342	178
Total April	1,029	1,666,284	376	152
Difference	38	1,438,806	33	26

Note—A change in the method of accounting for initial production in the East Texas Field is responsible for the large decrease in the figures in the initial production column. Up to May initial production in East Texas was based on estimated potential initial production, reckoned from the short time actual production period. In May it was decided in the field to give only the actual production made on the first day of each well, resulting in a total of only a fraction of what the potential would have been. This method will be continued. It is the same as the method used in the Oklahoma City Field in Oklahoma.

RIGS AND WELLS DRILLING

	Rigs	Drlg.	Ttl.
Eastern	34	142	176
Central Ohio	26	105	131
Lima	5	19	24
Indiana	3	51	54
Michigan	63	103	166
Kentucky	12	98	110
Missouri	0	1	1
Tennessee	0	15	15
Illinois	3	21	24
Kansas	37	128	165
Oklahoma	69	306	375
North Central Texas	26	152	178
East Central Texas	150	554	704
East Texas Gas Field	17	39	56
West Texas	15	112	127
Panhandle Texas	21	36	57
Gulf Coast	9	105	114
Southwest Texas	16	103	121
North Louisiana	20	60	80
Arkansas	6	31	37
Mississippi	5	13	18
Alabama	2	3	5
Montana	10	66	76
Wyoming	13	83	96
Colorado	12	68	80
New Mexico	4	44	48
Utah	1	19	20
Total May	579	2,477	3,056
Total April	491	2,179	2,670
Difference	88	298	386

Note—In the following report the Section, Township and Range are given first; then the farm, the owner, the serial number of the well and the initial production of the well. In lines where the Section, Township and Range are missing the wells are located in the Sections, Townships and Ranges which appear next above in the report.

OKLAHOMA FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Atoka	1	0	1	0
Carter	4	100	3	0
Coal	1	0	0	1
Comanche	1	0	1	0
Cotton	1	0	1	0
Creek	5	0	3	2
Grady	1	0	0	1
Haskell	3	0	2	1
Hughes	1	0	0	1
Jefferson	1	0	1	0
Latimer	1	0	0	1
Le Flore	1	0	1	0
Lincoln	4	10,449	1	0
Marshall	1	0	1	0
McIntosh	1	0	1	0
Muskogee	8	25	6	1
Noble	1	0	1	0
Okfuskee	2	0	2	0
Okmulgee	6	10	2	3
Oklahoma	6	42,189	0	0
Osage	3	23	1	0
Pittsburgh	1	0	1	0
Pottawatomie	2	189	1	0
Seminole	4	1,745	2	0
Stephens	3	12	1	0
Tulsa	3	0	2	1
Wagoner	1	0	1	0
Total May	65	54,742	36	12
Total April	139	217,891	46	36
Difference	74	163,149	10	14

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Alfalfa	0	1	1
Atoka	1	1	2
Beckham	1	6	7
Blaine	0	1	1
Bryan	0	3	3
Caddo	0	5	5
Canadian	0	1	1
Coal	0	2	2
Carter	5	2	7
Cleveland	1	1	2
Comanche	0	1	1
Cotton	0	1	1
Creek	8	23	31
Garfield	1	5	6
Garvin	0	2	2
Grady	1	0	1
Greer	0	2	2
Grant	0	1	1
Harper	0	1	1
Hughes	1	4	5
Haskell	0	3	3
Jefferson	0	2	2
Kay	2	6	8
Kiowa	0	4	4
Latimer	1	1	1
Le Flore	0	1	1
Lincoln	0	5	5
Logan	0	3	3
McIntosh	0	2	2
Marshall	1	4	5
Murray	0	1	1
Muskogee	2	15	17
Noble	2	9	11
Okfuskee	1	8	9
Oklahoma	22	93	115
Okmulgee	1	12	13
Osage	4	10	14
Pawnee	1	10	11
Payne	0	2	2
Pittsburg	5	6	11
Pontotoc	0	3	3
Pottawatomie	3	3	6
Roger Mills	0	2	2
Seminole	2	13	15
Stephens	0	4	4
Tulsa	1	9	10
Washita	0	2	2
Wagoner	2	10	12
Total May	69	306	375
Total April	80	300	380
Difference	11	6	5

WELLS COMPLETED

ATOKA COUNTY

9-1-1S Rolland ranch, Edgerton et al 1 dry

Wells completed 1
Dry 1

CARTER COUNTY

35-1s-3w Hopson, Lewis Sikes et al 1.. dry
19-1s-2w Taylor, Carter Oil Co. 1..... dry
30-1s-2w Burton, Magnolia Pet. Co. 1.. dry
14-1s-3w Carter, Lesh & McCall 2..... 100

Wells completed 4
Production 100
Dry 3

COAL COUNTY

30-3-1E Gum Bros., Midwestern Oil Co. 2 gas

Wells completed 1
Gas 1
Gas production 1,500,000

COMANCHE COUNTY

8-3-10w Kline, Max Pray Oil Co. 1-A... dry

Wells completed 1
Dry 1

COTTON COUNTY

28-2s-11w Thompson, Colbert & Cole 1.. dry

Wells completed 1
Dry 1

CREEK COUNTY

4-17-10 Stanley, O'Hair & Foster 1.... dry
24-17-10 Bucktrot, Pioneer Pet. Co. 15. gas
30-19- 9 Nants, Evans, Lair et al 1.... dry
34-17- 7 Boone, Magnolia Pet. Co. 4.... gas
19-17- 8 Cubbie, C. O. Buckles 1..... dry

Wells completed 5
Dry 3
Gas 2
Gas production 8,000,000

GRADY COUNTY

36-4-8w Rudley, Okla. Gas Utilities 2.. gas

Wells completed 1
Gas 1
Gas production 23,500,000

HASKELL COUNTY

11- 9-1E Green, Enterprise Gas Co. 1.. dry
6- 7-2E Townsite, Finefield & Connell 1 gas
23-11-2I Holleman, I. T. I. Oil Co. 1... dry

Wells completed 3
Dry 2
Gas 1
Gas production 1,000,000

HUGHES COUNTY

11-7-8 Walker, Boettcher O. & G. Co. 1 gas

Wells completed 1
Gas 1
Gas production 35,000,000

JEFFERSON COUNTY

23-2s-6w Grover, C. D. Chenault 1..... dry

Wells completed 1
Dry 1

LATIMER COUNTY

16-5-1E Kilpatrick, Limestone O. & G. 1 gas

Wells completed 1
Gas 1
Gas production 8,000,000

LEFLORE COUNTY

22-7-2E Peck, Sooner O. & G. Co. 1.... dry

Wells completed 1
Dry 1

LINCOLN COUNTY

7-14-4 Tillford, Coline Oil Co. 2..... 3913
32-17-4 Grant, O. H. Parkening and M. H. Watts 1 ..... dry
7-14-4 Tillford, Magnolia Pet. Co. 2...4188
18-14-4 Wagner, Magnolia Pet. Co. 1..2348

Wells completed 4
Production 10,449
Dry 1

MARSHALL COUNTY

17-6s-5 Sharp, Industrial Oil Co. 1.... dry

Wells completed 1
Dry 1

McINTOSH COUNTY

34-12-15 Wolf, J. S. Routt et al 1..... dry

Wells completed 1
Dry 1

MUSKOGEE COUNTY

30-12-19 Scott, Hall & Ray 1..... dry
19-16-15 Barnett, Hersha & Dulaney 1.. dry
4-14-18 Crabtree, J. A. Swindler & Son 4 25
7-12-19 Kerr, A. Degan 1..... dry
5-14-14 Rentie, Denton & Marshall 1.. dry
18-12-19 Kerr, A. Degan 1..... dry
12-15-15 Lewis, G. S. Wilson 1..... dry
18-13-16 Brown, Braman Oil Co. 1..... gas

Wells completed 8
Production 25
Dry 6
Gas 1
Gas production 1,000,000

NOBLE COUNTY

22-22-1e Upperman, Prairie O. & G. 1.. dry

Wells completed 1
Dry 1

OKFUSKEE COUNTY

32-12-10 Phillips, Mid-Cont. Pet. Corp. 1 dry
8-11-12 Summers, A. Moffitt et al 4... dry

Wells completed 2
Dry 2

OKMULGEE COUNTY

24-16-14 McKay, Mack Drlg. Co. 1-A.. dry
31-15-13 Pigeon, D. M. Logan 1..... gas
17-15-14 Howard, R. E. Burk 2..... dry
1-14-14 Harris, Whitcomb et al 6..... 10
16-12-14 Butler, W. L. Varner 1..... gas
28-12-14 Anderson, Jordan et al 2..... gas

Wells completed 6
Production 10
Dry 2
Gas 3
Gas production 7,000,000

OKLAHOMA COUNTY

15-11-3w Giles, Shaffer et al 1..... [1]7184
24-12-3w Carey, Westgate Oil Co. 1... [1]8622
Egbert, T. B. Slick est. 1... [1]8064
3-11-3w Townsite, Champlin O. & R. Co. et al 1..... [1]8649
10-11-3w Davis, Phillips Pet. Co. 1.. [1]9783
10-11-3w Ransom, Dengall and Carolyn et al 1..... [2]2887

Wells completed 6
Production 42,189

[1]4 hours. [2]3 hours.

OSAGE COUNTY

15-24-7 Producers & Refiners Corp. 1.. 23
16-25-8 Prairie O. & G. Co. 1..... dry

Wells completed 2
Production 23
Dry 1

PITTSBURG COUNTY

10-7-1E C. Bascom, Utilities Prod. Co. 3 gas

Wells completed 1
Gas 1
Gas production 20,000,000

POTTAWATOMIE COUNTY

10-7-4 Duff, Arms Drlg. Co. 1..... 189
6-6-4 Harris, Magnolia Pet. Co. 1..... dry

Wells completed 2
Production 189
Dry 1

SEMINOLE COUNTY

24-5-7 Whitney, Magnolia Pet. Co. 1.. dry
8-9-6 Phillips, Pierce et al 1..... 295
30-8-8 Henshaw, Burke Greis Oil Co. 2..1450
33-9-6 Earls, Gwin et al 1..... dry

Wells completed 4
Production 1745
Dry 2

STEPHENS COUNTY

11-3s-6w Florence, Carter Oil Co. 1.... dry
3-2s-8w Bush, Geo. Pace et al 1-C.... 12

Wells completed 3
Production 12
Dry 1

TULSA COUNTY

12-16-12 Ellinghausen, Baxter et al 1.. gas
7-19-14 Morgan, Bradshaw et al 1.... dry
4-17-14 McIntosh, W. H. Bowder et al 1 dry

Wells completed 3
Dry 2
Gas 1
Gas production 400,000

WAGONER COUNTY

18-19-16 Harrison, Keener O. & G. Co. 1 dry

Wells completed 1
Dry 1

KANSAS FIELDS

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Barton	0	3	3
Bourbon	0	1	1
Butler	1	2	3
Chase	1	0	1
Clay	0	1	1
Coffey	0	2	2
Cowley	1	7	8
Dickenson	0	1	1
Ellsworth	0	4	4
Ford	0	3	3
Franklin	0	1	1
Greenwood	2	9	11
Graham	0	1	1
Harper	0	1	1
Harvey	0	2	2
Lyon	0	1	1
McPherson	18	37	55
Marion	0	4	4
Morris	2	1	3
Morton	0	2	2
Ness	0	1	1
Osage	0	1	1
Rawlins	0	1	1
Reno	0	5	5
Rice	4	5	9
Rooks	0	2	2
Rush	0	2	2
Russell	1	4	5
Saline	0	2	2
Sedgwick	1	11	12
Sheridan	0	1	1
Stafford	0	1	1
Stevens	2	6	8
Sumner	3	1	4
Trego	0	1	1
Washington	0	1	1
Woodson	1	0	1
Total May	37	128	165
Total April	31	132	163
Difference	6	4	2

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	2	150	1	0
Cowley	5	365	2	1
Elk	1	100	0	0
Geary	1	0	1	0
Greenwood	4	70	4	0
Harvey	1	0	1	0
McPherson	20	12,394	4	4
Morris	1	0	0	1
Rice	1	0	1	0
Sedgwick	1	590	0	0
Stevens	2	0	0	2
Total May	41	13,569	14	8
Total April	33	7,353	7	11
Difference	8	6,216	7	3

WELLS COMPLETED

BUTLER COUNTY

20-26-5 Koogler, Empire O. & R. Co.... 150
6-27-6 Sluss "B," Garden et al 2..... dry

Wells completed 2
Production 150
Dry 1

COWLEY COUNTY

25-34-3 Carlisle, G. M. Long et al 1.... dry
12-32-4 Brant, Roth & Faurot 4..... 240
15-32-4 State, McKnabb & Bess 2..... 125
28-30-3 Sloan, Blankenship Pet. Co. 2.. dry
8-32-5 Bauman, Sooby et al 1..... gas

Wells completed 5
Production 365
Dry 2
Gas 1
Gas production 215,000

ELK COUNTY

3-31-8 Denton, Minnehoma Oil Co. 2... 100

Wells completed 1
Production 100

GEARY COUNTY

17-15-5 Youkon, Wright et al 1..... dry

Wells completed 1
Dry 1

GREENWOOD COUNTY

32-22-1E Davis, Prairie O. & G. et al 1 dry
4-23-1E Inthurn, Haverhill Pet. Co. 20. 45
25-24-1E Beavers, Sinclair O. & G. Co. 2 25
5-24-1E Nixon "A," Sheedy et al 1.... dry
35-24-10 Edwards, Gore and Phillips Pet. Co. 1 ..... dry
17-24-1E Thrall, Mathews et al 1..... dry

Wells completed 6
Production 70
Dry 4

HARVEY COUNTY

23-23-2w Seiler, Empire O. & R. Co. and Shell Pet. 1 ..... dry

Wells completed 1
Dry 1

MORRIS COUNTY

15-16-7 Munsell, Loomis et al 1..... gas

Wells completed 1
Gas 1
Gas production 1,000,000

McPHERSON COUNTY

6-20-1w Locquemont, Lario Oil Co. and Shell Pet. Corp. 1..... [1]778
1-19-2w Russell, Madison and Shell Pet. Corp. 1 ..... dry
36-19-2w Kochn, Wakefield and Shell Pet. Corp. 1 ..... [1]861
1-19-2w Peterson, Madison and Shell Pet. Corp. 1 ..... dry
16-19-1w Fletcher, Darby Pet. Corp. 1. gas
29-19-1w Smith, United Pet. Co. and Shell Pet. Corp. 1 1928
17-19-1w Lagree, Carter Oil Co. 1..... gas
20-19-1w Loquemont, United Pet. Co. and Sinclair O. & G. 1..... gas
35-19-2w Brum, Vernon O. & G. Co. and Shell Pet. Corp. 1..... 360
2-19-2w Sadie, Moriarty et al 2..... gas
18-19-1w Way, Prairie O. & G. et al 1. dry
36-19-2w Becker, Lario Oil Co. and Shell Pet. Corp. 1 ..... [1]110
19-19-1w Gratton, Phillips Pet. Co. and Shell Pet. Corp. 1..... 204
23-19-1w Sommerfield, Henderson & Holden 1 ..... dry
31-19-1w Unruh, Lassen and Shell Pet. Corp. et al 1..... [1]835
Ritz, Reserve Oil Co. 1..... [1]910
7-20-1w Meeks, Washoma O. & G. Co. Shell Pet. Corp. 1..... 1850
15-21-3w Kaufman, Otstot et al 1..... 400

35-19-2w Decker, Dickey Oil Co. and Shell Pet. Corp. 1 ..... [3]361
33-20-3w E. Stuckey, Gypsy Oil Co. 2 .. [4]697

Wells completed 20
Production 12,294
Dry 4
Gas 4
Gas production 59,989,000

[3]12 hours. [4]17 hours.

RICE COUNTY

28-20-10w Turner, Graham Bros. and Barnsdall Oil Co. 1 ..... dry

Wells completed 1
Dry 1

SEDGWICK COUNTY

15-26-2 Lygrisse, Jones and Shell Pet. Corp. 1 590
Wells completed 1
Production 590

STEVENS COUNTY

12-34-38w Greenwood, Texas Interstate P. L. Co. et al 1 ..... gas
Stuart, Texas Interstate P. L. Co. 1 ..... gas

Wells completed 2
Gas 2
Gas production 10,048,000

EAST CENTRAL TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Abd.	Gas Rgs.	Dig.	Ttl.
Anderson ..	1	30	0	0	2	0	2
Delta	0	0	0	0	0	3	3
Cherokee ..	4	0	4	0	1	6	7
Ellis	0	0	0	0	0	1	1
Gregg	39	32,166	8	0	34	134	168
Grimes	1	0	1	0	0	0	0
Henderson .	0	0	0	0	1	1	2
Houston ..	0	0	0	0	0	1	1
Lamar	0	0	0	0	1	2	3
Limestone .	1	0	1	0	0	1	1
Morris	0	0	0	0	0	1	1
Nacogdoches	1	0	1	0	2	15	17
Red River .	1	0	1	0	1	2	3
Rains	1	0	1	0	0	0	0
Rusk	169	81,454	8	0	99	338	437
Smith	7	1,414	4	0	0	11	11
Upshur	2	380	0	0	4	19	23
Van Zandt .	8	739	1	0	3	16	19
Walker	1	0	1	0	0	0	0
Wood	0	0	0	0	2	3	5
Ttl. May	236	116,183	31	0	150	554	704
Ttl. Apr.	242	1,381,888	29	4	44	156	200
Diff'nce .	44	1,265,705	2	4	106	398	504

Note—The initial production figures for May represent the actual volume of oil produced on the first day the wells produced, through 11/16-inch choke. Previous initial production figures were based on the potential initial production calculated from a short time flow on the first day. The change in figuring initial production was decided upon in the field for the purpose of giving a truer measure of first-day output, and getting away from guesswork.

WELLS COMPLETED

ANDERSON COUNTY

Humble O. & R., No. 6-A Todd 30

CHEROKEE COUNTY

Sinclair O. & G., No. 1 Thos. McRae.. abd
O. W. Killam et al, No. 1 Beckman .. abd
Fain & McGaha, No. 1 W. A. Shaw.. abd
Sinclair O. & G., No. 1 G. T. Martin .. abd

Wells completed 4
Abandoned 4

GREGG COUNTY

Gulf Prod. Co., No. 1 Muckleroy 155
Gulf Prod. Co., No. 3 Muckelery 160
Gulf Prod. Co., No. 4 Muckelery 137
Gulf Prod. Co., No. 1 Spear 150
Gulf Prod. Co., No. 2 Spear 150
Gulf Prod. Co., No. 1 Ben Watson 130
Hawkeye Pet. Co., No. 1 Doc Smith ... abd
Humble O. & R. Co., No. 1 J. A. Knowles 56
Wise & Jackson, No. 1 Wash Dickey .. 450
T. P. C. & C. Co., No. 1 fee 939
Humble O. & R., No. 1 D. C. Johnson. 80
Humble O. & R., No. 1 T. M. Armstrong 150
Flannery & Bradley, No. 1 W. H. Yorn. 1020
Blackknight Oil Co., No. 1 McGrede ... 108
Yount Lee Oil Co., No. 1 B. E. Rodden. 272
Yount Lee Oil Co., No. 1 Issac Denson 110
Sinclair O. & G., No. 1 Mattie Moncrief 195
Republic Prod. Co., No. 2 C. Fisher.... 183
Pilot Oil Co., No. 1 Magrill 3500
Mid-Kana O. & G., No. 1 E. M. Nelleton 100
Magnolia Pet. Co., No. 6 B. E. Rodden. 670
Flannigan Prod. Co., No. 1 A. J. Green. 103
F. & M. Drlg. Co., No. 1 W. L. Blackstone 838
I. C. Little's No. 2 Springhill Church.. 125
Delaney et al, No. 1 H. Clemens..... 167
Blackstock et al, No. 1 McGrede..... 94
Barnsdall O. & R. Co. *650
Ark. Fuel Oil Co., No. 1 Castleberry.... 208
Angeline & Burnett's No. 1 McGrede.. 102
Cranfill & Reynolds, No. 1 S. S. Barton. *350
Corley & Blairs, No. 1 W. E. Bumpass. 408
Robert Bowles et al, No. 1 J. C. McKinley 180
Barnsdall Oil Co., No. 2 J. C. McGrede. 108
Ark. Fuel Oil Co., No. 2-A J. C. McKinley 229
Gulf Prod. Co., No. 1 S. S. Fishburn.... 186
Heyser-Heard, No. 1 W. J. Guy and C. E. Edwards 98
Magnolia Pet. Co., No. 2 J. C. McKinley 168
O'Brien Bros., No. 1 J. H. and W. E. M. Haney et al *64
Shano Oil Co., No. 1 G. R. Fenton..... 189
Sinclair O. & G. Co., No. 2 Moncrief.. 65
Sinclair O. & G. Co., No. 3 Moncrief.. 188
Smitherman & Greer's No. 1 Jones et al 152
Stanolind O. & G. Co. and Simms, No. 1 Magrill 160
Yount Lee Oil Co., No. 1-B Fenton.... 158
Gulf Prod. Co., No. 1 Solon King..... 113
Magnolia Pet. Co., No. 1 Hughey..... 127
Harper & Neff, No. 1 M. T. Cole..... 500
Refugio Oil Corp., No. 1 Hughey..... 350
Cranfill & Reynold, No. 1 Scott..... 240
Gulf Prod. Co., No. 1 Mary Charles.... 55
Merren & May, No. 2 Hawkins..... 130
Sun Oil Co.'s No. 2 J. R. Beall..... 90
Weaver-Crim, No. 2 Laird..... 179
Werby, No. 3 King..... 90
Gulf Prod. Co., No. 3 Spear..... 130
Masada Oil Co., No. 1 Hegler..... 1080
Pace et al, No. 1 Harrell est..... abd
Rushing, No. 1 J. M. Dickson..... 1235
G. W. Hindman, No. 1 Blackman..... †310
Paul Vitek et al, No. 1 Louise Osborne. abd
Ark. Fuel Oil Co., No. 5-A F. K. Lathrop 148
Badgett & Cooper, No. 1 C. C. Clemons. 1700
Capital Prod. Co., No. 1 Louise Osborne. abd
Cranfill & Reynolds, No. 2 Blackman. *2000
Cranfill & Reynolds, No. 1 F. E. McGrede 1640
Eslick & Little, No. 1 W. R. Nicholson. 16
Gibson & Adams, No. 1 Collier..... 75
C. C. Julian, No. 1 J. M. England..... 300
Harry Elliott, No. 2 Andrews..... 70
Magnolia Pet. Co., No. 1 J. C. McKinley 470
Mazda Oil Co., No. 1 W. W. Cotton.... 212
H. G. Oliphant, No. 1 Willis Smith.... (‡)
John W. Olvey, No. 1 Ben Rodden.... 2016
Shano Oil Co., No. 1 Arthur Christian. 1000
Shell Pet. Corp., No. 1 Ben Watson.... 200
Stanolind O. & G. Co., No. 1-A Harley.. 2413
Texas Unity, No. 2 I. & G. N. 220
Cranfill & Reynolds, No. 1 G. L. Rembert abd
East Texas Refg. Co., No. 3 Fisher.... abd
Mamie S. Hammond, No. 1 J. M. Hamby abd
Hopkins et al, No. 1 Watson..... 94
Humble O. & R. Co., No. 1 S. S. Laird. 37
Hunter & Rowe, No. 1 Watson..... 137
Martin Oil Synd., No. 1 Springhill Church 204
McMillan Pet. Co., No. 1 Geo. Fenton.. 600
Republic Prod. Co., No. 1 Fisher..... 140
Sultan-Daniels et al, No. 1 Springhill Church 55
Vierson, No. 1 Muckelroy..... 16
Yount Lee Oil Co., No. 1 R. S. McKinley abd

Wells completed 39
Production 32,166
Abandoned 8

Note—Production was taken on various chokes. *Per hour. †Wide open. ‡No gauge.

GRIMES COUNTY

Cullen et al, No. 1 Beckman..... abd

LIMESTONE COUNTY

O'Byrne & Chapman, No. 1 S. W. Hancock ..... abd

NACOGDOCHES COUNTY

Starks et al, No. 1 Langford..... abd

RAINS COUNTY

Westbrook Oil Co., No. 1 Wm. Cates... abd

RED RIVER COUNTY

Droppleman & Bundy, No. 1 J. W. Cunningham ..... abd

RUSK COUNTY

Ark. Fuel Oil Co., No. 1 John Wheelis.. 1000
Babcock Bros., No. 2 Camp..... 50
Devonian Oil Co., No. 1 Milstead..... 127
Droppleman Drlg. Co., No. 1 Stone.... 440
Foster and Deep Rock Oil Co., No. 3 Mayfield Alford 25
Gilcrease, No. 4 Bradford..... 110
Green Pine Oil Co., No. 1 Thrash..... *35
Gulf Prod. Co., No. 3 Thrash..... 140
Hefflin & Fox, No. 3 Thrash..... 400
Hunt, No. 1 M. Pool..... 127
Indian State, No. 1 Talliaferro..... 3000
J. E. Mabee's No. 1 Wilson..... 450
W. G. Ray Drlg. Co., No. 1-A Wilson.. 175
Roeser & Pendleton, No. 2 Pool..... 198
Devonian Oil Co., No. 2 Motley..... 120
Gulf Coast Oil Co., No. 4 Brightwell... 420
Snowden & McSweeney, No. 3 Ben Laird 170
Tidal Oil Co., No. 1 Laird..... 75
Tidal Oil Co., No. 1 Terrell..... abd
Heep Oil Co., No. 1 Bivens..... 120
Humble O. & R. Co., No. 5-A S. S. Laird 55
Humble O. & R. Co., No. 3-B S. S. Laird 48
Navarro Oil Co., No. 3 Brightwell..... 125
Humble O. & R. Co., No. 6 Kangera.. *45
H. L. Hunt, No. 2 Fair..... 675
Pace et al, No. 1 Deason..... 65
Pilot Oil Co., No. 1 J. E. Thrash..... 125
Roeser & Pendleton, No. 2 Glenn..... 124
Turman, No. 2 R. Dark..... 588
Vitex, No. 1 Jobe..... 40
Blackwell O. & G. Co., No. 1 Moore.... 300
Gulf Prod. Co., No. 1 Walter Shaw.... 115
W. B. Hamilton, No. 1 Gambrell..... 360
Haynes Bros., No. 1 Thrash..... 330
Humble O. & R. Co., No. 2 Thompson... 85
H. L. Hunt, No. 1 Plowman..... 3940
Republic Prod. Co., No. 1 Bean..... 112
Republic Prod. Co., No. 1 Christian.... 150
Republic Prod. Co., No. 2 Haynes..... 180
Stanolind O. & G., No. 1 Brightwell.... 210
T. P. C. & O. Co., No. 1 C. O. Christian 270
Turman Oil Co., No. 3 Brightwell..... 120
Elsy Drlg. Co., No. 1 Brightwell..... 90
Gulf Coast Oil Co., No. 3 Brightwell.. 330
E. M. Jones, No. 4-B Crim..... 124
McMahan et al, No. 2 S. S. Laird..... 650
Magnolia Pet. Co., No. 2 Birdsong..... 104
Tidal Oil Co., No. 1 J. S. Bean..... 78
Turman Oil Co., No. 4-B Brightwell.... 176
Woodley Pet. Co., No. 2 Thompson..... 85
Gulf Prod. Co., No. 1 O'Quinn..... 192
Gulf Prod. Co. No. 3 Birdsong..... 80
Gulf Prod. Co., No. 1 Della Crim..... 124
Gulf Prod. Co., No. 1 T. B. Cashen.... 109
Houston Oil Co., No. 3 Dave Ladd..... 76
Gulf Prod. Co., No. 4 Birdsong..... 113
East Texas Ref. Co., No. 5 S. B. Ellis.. 105
Cromwell et al, No. 1 C. J. Bredberry.. 40
British-American, No. 1 Willie Ector... 220
Humble O. & R. Co., No. 3 J. N. Peterson ..... abd
N. W. Hunter's No. 4 Buntyn..... 125
Lewis & Perkins, No. 1 Brock Hrs. 120
Olvey, No. 4 Crim..... 37
Stanolind O. & G. Co., No. 1 J. S. Powers 132
Stanolind O. & G. Co., No. 1 M. R. Terrell 55
Sun Oil Co., No. 2 Baker..... abd
Sun Oil Co., No. 1 J. R. Beall..... 110
Westheimer, No. 4 Peterson..... 115
Cranfill & Reynolds, No. 2 Thompson... 93
Gulf Coast Oil Co., No. 2 Brightwell... 430
Houston Smith, No. 1-A N. C. Bean.... 104
Hunter, No. 3 Buntyn..... 115
Magnolia Pet. Co., No. 1 Birdsong.... [5]13,000
Mid-Kana O. & G. Co., No. 1 J. R. Beall 186
Republic Prod. Co., No. 3 Hindman.... 178
Snowden & McSweeney, No. 2 Bean.... 73
Berry & Lewis, No. 1 Thompson..... abd
Crabtree, No. 1 Giles..... 50
Gulf Prod. Co., No. 1 Turner..... 146
H. L. Hunt, No. 1 Maxwell..... 750
H. L. Hunt, No. 1 J. R. Thrash..... 229
Lide et al, No. 3 C. Young..... 110
Standard Pipe Co., No. 1 W. P. Brett.. 150
Turman, No. 1 Robart Dark..... 32
West Tex. Reg. Co., No. 2 Tally..... 220
Anderson, No. 3 Thrash..... 100
Foster and Deep Rock Oil Co., No. 2 Holland 150
Gulf Prod. Co., No. 2 Keeling..... 91
Haynes et al, No. 1 Lee..... 72
G. M. Pollard, No. 1 Young..... 105
Fox, Butler & Heffling, No. 1 Thrash.. abd
McMann, No. 2 Finney..... 1448
McMann, No. 1 S. S. Laird..... 1020
Merrick et al, No. 1 Ashby..... 1734
Merrick et al, No. 1 Cooper (per day through casing) 1500
Navarro Oil Co., No. 2 Brightwell..... 128
Oliver & Brown, No. 1 F. Hindman..... 135
Pet. Marketing Co., No. 2 Deason..... 425
Stanolind O. & G. Co., No. 3 Ben Laird. 74
Stanolind O. & G. Co., No. 4 Ben Laird. 79
Sun Oil Co., No. 1 S. A. Selman....[6]13,500
Turman Oil Co., No. 1-A W. P. Brightwell 300
Ward Oil Co., No. 1 Cox..... 60
Ward et al, No. 1 H. P. Leverett..... 260
Williams & Dunning, No. 1 C. Young.. 40
Laster et al, No. 1 Maxwell..... 500
La-Tex Oil Co., No. 1 Major Kennedy.. 1480
Magnolia Pet. Co., No. 1 Peterson..... 236
Markham & Dunning, No. 4 J. N. Peterson 153
McIntyre et al, No. 1 M. L. Thompson.. 113
Moss & Urshel, No. 2 Mayfield-Alford.. 50
Pioneer, No. 3 Thrash..... abd
Ramsey Pet. Corp., No. 1 Kangerga.... abd
Geo. Ray et al, No. 1 Young..... 350
Roeser & Pendleton, No. 1 Pool..... 140
Sinclair O. & G., No. 1 W. O. Kinney.. 125
Sun Oil Co., No. 2 Selman..... 200
Tidal Oil Co., No. 2 Nat Bean..... 65
Tidal Oil Co., No. 2 M. R. Terrell..... 90
Tulsa O. & G., No. 1 Kangerga..... 325
Turman, No. 2 Young..... (‡)
Vaughn, No. 2 Young..... 840
Ward Oil Co., No. 1 Finney..... 1615
Weaver-Crim, No. 1 B. F. Laird..... 128
Westheimer, No. 3 D. M. Peterson..... 135
Woodley Pet. Co., No. 1 Geo. Thompson. 60
Dan Brooks, No. 1 Alford..... abd
Burton Drlg. Co., No. 2 E. B. S. Florey. 40
Roy I. Carter, No. 2 Giles..... 125
Cranfill & Reynolds, No. 1 Cox..... 150
East Texas Ref. Co., No. 1 Pool..... 175
Federated, No. 3 Mayfield-Alford..... 98
Gulf Prod. Co., No. 2 R. W. Brightwell 70
Gulf Prod. Co., No. 5 Griffin..... 180
Gulf Coast Oil Co., No. 2 Giles..... 100
Helis & Collins, No. 1 Birdsong..... 2200
Jno. W. Hoosier, No. 1 Talliaferro..... 40
Houston Prod. Co., No. 1 W. R. Brightwell 124
Houston Oil Co., No. 2 W. P. Brightwell 40
Houston Oil Co., No. 5 W. P. Brightwell 220
Houston Oil Co., No. 3 L. D. Crim..... 115
Houston Oil Co., No. 1 S. S. Laird..... 48
Humble O. & R. Co., No. 15 L. D. Crim 65
Humble O. & R. Co., No. 18 Crim..... 65
Humble O. & R. Co., No. 1 Kangerga.. 97
Humble O. & R. Co., No. 4 Kangerga.. 92
Humble O. & R. Co., No. 1 R. H. Laird 101
Humble O. & R. Co., No. 8 Peterson... 90
H. L. Hunt, No. 1 Fair..... 125
H. L. Hunt, No. 3 Young..... 105
Fitzsimmons, No. 1 Alford..... 400
Gulf Prod. Co., No. 2 Brightwell..... 60
Gulf Coast, No. 1 Giles..... 3000
Gulf Prod. Co., No. 4 Griffin..... 180
Gulf Prod. Co., No. 6 Griffin..... 320
Gulf Prod. Co., No. 1 Hindman..... 102
Gulf Prod. Co. and Devonian No. 1 W. L. Laird 170
Gulf and Devonian, No. 1 W. L. Laird. 180
Gulf and Smith, No. 3 Peterson..... 124
Gulf and Smith, No. 5 Peterson..... 120
Houston Oil Co., No. 1-B Carlos Bean.. [7]000
Houston Oil Co., No. 1 Brightwell..... 124
Humble O. & R. Co., No. 17 Crim..... 260
Humble O. & R. Co., No. 19 Crim..... 285
Humble O. & R. Co., No. 3 S. S. Laird. 313
Humble O. & R. Co., No. 4 S. S. Laird. 63
N. W. Hunter, No. 1 Buntyn..... 350
N. W. Hunter, No. 2 Buntyn..... 750
E. M. Jones, No. 2-A J. N. Peterson... 90
E. M. Jones, No. 1 W. B. Wills..... 102
K. & P. Oil Co., No. 1 Lou Emma Price. 1000
John Mabee, No. 1 W. P. Brett..... 150
Magnolia Pet. Co., No. 3 B. F. Laird.. 73
Markham and Dunning, No. 3 Peterson 491

Wells completed 169
Production[8] 81,454
Abandoned 8

*Per hour. †Per day (estimated). ‡No gauge. [8]Per day. [5]Production was taken on various chokes.

SMITH COUNTY

Sinclair O. & G. Co., No. 2 Mayfield.. 923
East Texas Ref. Co., No. 1 Tyska..... 261
Chapman et al, No. 1 Alexander..... abd
Howard Pet. Co., No. 1 Lee Holt..... abd
Guy Lewis, No. 1 Wright..... abd
Sinclair O. & G. Co., No. 1 A. S. Jarvis 230
Sun Oil Co., No. 1 Henson..... abd

Wells completed 7
Production (on chokes) 1414
Abandoned 4

VAN ZANDT COUNTY

Pure Oil Co., No. 5 C. H. Cannon..... 96
Pure Oil Co., No. 3 Ella York..... 118
J. C. Fore, No. 1 P. S. Hand..... abd
Humble O. & R. Co., No. 1 C. L. York 117
Pure Oil Co., No. 3 R. C. Crim..... 100
Pure Oil Co., No. 5 R. L. Wells..... 100
Pure Oil Co., No. 2 A. D. Clark..... 108
Pure Oil Co., No. 1 B. W. Russell..... 100

Wells completed 8
Production 739
Abandoned 1

WALKER COUNTY

Texas State Oil Co., No. 1 W. L. Falls.. abd
Production (on chokes) 380

UPSHUR COUNTY

Fleetborn Oil Co., No. 1 J. K. Edwards 106
Mudge Oil Co., No. 1 J. D. Richardson. 274

Wells completed 2

NORTH CENTRAL TEXAS

Summary of Wells Completed

	Comp.	Prod.	Dry	Gas
Archer	18	881	11	0
Baylor	1	0	1	0
Brown	4	139	3	0
Callahan	6	8	4	1
Clay	3	0	1	2
Coleman	16	985	7	4
Cooke	2	0	2	0
Denton	1	0	1	0
Eastland	5	20	1	3
Haskell	1	0	1	0
Jack	3	0	2	1
Palo Pinto	10	0	7	3
Parker	1	0	1	0
Shackelford	1	12	0	0
Stephens	3	0	0	3
Throckmorton	3	0	3	0
Wichita	4	35	3	0
Young	30	1,580	22	0
Total May	112	3,660	70	17
Total April	93	2,159	68	8
Difference	19	1,501	2	9

Rigs and Wells Drilling

	Rigs	S.D.	Drlg.	Ttl.
Archer	5	10	9	24
Brown	1	4	2	7
Callahan	0	1	0	1
Coleman	7	4	8	19
Cooke	2	6	1	9
Clay	0	3	0	3
Eastland	0	2	2	4
Erath	0	2	1	3
Jack	0	0	4	4
Palo Pinto	1	0	5	6
Shackelford	1	2	1	4
Stephens	0	1	1	2
Throckmorton	1	1	1	3
Wichita	2	3	6	11
Wilbarger	0	2	3	5
Young	3	25	14	42
Miscellaneous	3	16	12	31
Total May	26	82	70	178
Total April	20	80	91	191
Difference	6	2	21	13

WELLS COMPLETED

ARCHER COUNTY

L. F. Wilson Lse. 4-A, Deep Oil Dev. Co. 1 666
Langford Inv. Co., W. C. Young 1 ..... dry
W. L. King, Fraser & King 1 ..... dry
B. E. Cooper, Hunter Oil Corp. 1 ..... dry
Wagner Est.-B, Hunter Oil Corp. 1 50
J. F. Richardson, F. P. Hynes 3 35
J. F. Kovar, W. C. Young 1 (loc. temp. aband.) ..... dry
L. F. Wilson, Stump et al 2 25
J. H. White, John H. Wilson 1 ..... dry
G. H. Plowman et al, W. C. Young 1 .. dry
S. Webb, R. J. Brown 1 ..... dry
Cross, C. W. Clark 1 ..... dry
A. J. Lowe, C. W. Clark 2 ..... dry
Earl Bearden, Hays Cooper et al 1 25
Falls County School Land (Humble), Cullum & Alexander 1 15
E. A. Hausler Est., Hunter Oil Corp. 1.. dry
Falls County School Land (Humble), Perkins & Cullum 1 65
E. A. Hausler, Rubsam, Golding & Cochran 1 ..... dry

Completions 18
Production 881
Dry holes 11

BAYLOR COUNTY

Robertson, Douglas Oil Co. 1 ..... dry

BROWN COUNTY

W. M. Armstrong, Young Bros. & Alexander 1 ..... dry
McClanahan, Atlantic-Pacific Oil Corp. et al 1 ..... dry
E. P. and W. H. Kilgore-A, Humble O. & R. Co. 3 139
Carmichael, E. L. Smith Oil Co. 1 ..... dry

Completions 4
Production 139
Dry holes 3

CALLAHAN COUNTY

E. L. Finley, R. Guffey et al 3 ..... dry
Windham-370, Mid-Tex Oil & Gas Co. 8
R. M. Renfro, Prairie & Bryant 1 ..... dry
J. T. Dyer, Union Oil Co. 1 ..... dry
Alexander, John Victor 1 ..... dry
Finley, Guffey et al 4 (formerly No. 1) gas

Completions 6
Production 8
Dry holes 4
Gas wells 1

CLAY COUNTY

A. B. Wylie, Ray Dawson et al 1 ..... gas
W. P. McInness, Jameson et al 1 ..... dry
W. C. Kelley Est., Ray Dawson et al 1 gas

Completions 3
Dry holes 1
Gas wells 2

COLEMAN COUNTY

Burkett, Arcadia Ref. Co. 2 125
B. W. Webb, Burkett O. & G. Co. 1 .... dry
E. Harris, Canyon Oil & Gas Co. and Lane 1 125
J. D. Horn, Condor Pet. Co. 1 ..... gas
Wright et al, Jackson et al 1 ..... dry
Burkett, Neversuch Oil Co. 3 250
B. F. Tweedle, Vernon Oil & Gas Co. 1 dry
H. W. Kingsberry, Hampton & Carter 1 dry
R. D. Kinney, Sr., Texas Petroleum Co. 1 dry
Burkett-B, Arcadia Ref. Co. 1 280
E. Harris, Canyon O. & G. Co. and Lane 2 ..... dry
F. Golson, Jamison, Pollard & Forster 1 205
B. W. Webb, Prairie O. & G. Co. et al 1 gas
W. C. Henderson, Snooks & Mitcham 1 gas

Stewardson, Eastland Oil Co. et al 1 .. gas
J. L. Stewardson, Engle et al 1 ..... dry

Completions 16
Production 985
Dry holes 7
Gas wells 4

COOKE COUNTY

Rohmer, Benson & Benson 1 ..... dry
C. J. Feete, Ed Ruwalt et al 1 ..... dry

DENTON COUNTY

Jacobs, Pilot Point Jacobs Synd. 1 .... dry

EASTLAND COUNTY

Richardson, Prairie O. & G. Co. 1 .... gas
Huestis & Broyles, Brown et al 1 ..... dry
B. V. Owens, Ed Keough 1 20
B. P. Cozart, Lone Star Gas Co. 1 .... gas
McClelland, Nature's Treasure Oil Co. 1 gas

Completions 5
Production 20
Dry holes 1
Gas wells 3

HASKELL COUNTY

C. Fischer, C. Fischer 1 ..... dry

JACK COUNTY

Keyser-B, Brazos River Gas Co. 2 ..... gas
Maxey, Ascot Co. 1 ..... dry
Richards & Lanier, Deininger, Sampley et al 1 ..... dry

Completions 3
Dry holes 2
Gas wells 1

PALO PINTO COUNTY

Dalton, Dalton et al 1 ..... dry
A. P. Wilbar, McLester Oil Co. 4 ..... gas
R. B. Thomas, Thomas et al 1 ..... gas
F. Owens, Brazos River Gas Co. 1 .... dry
C. Rexroat, Mook-Texas Oil Co. et al 1-A ..... dry
L. E. Seeman, Aabe Syndicate II 1 .... dry
Strawn Townsite, Bennings et al 1 .... dry
J. K. Weldon, Haubert et al 1 ..... dry
C. E. Allen-Brooks, Lone Star Gas Co. 1 dry
S. J. and W. B. Stuart, T. P. Coal & Oil Co. 1 ..... gas

Completions 10
Dry holes 7
Gas wells 3

PARKER COUNTY

J. Moran, Sanger O. & G. Co. 1 ..... dry

SHACKELFORD COUNTY

J. N. Nail, Hays et al 1 12

STEPHENS COUNTY

C. C. Vick, Hanlon Gasoline Co. and Lyman 1 ..... gas
Tomlin, Lone Star Gas Co. 1 ..... gas
Riddle et al, Urban et al 1 ..... gas

Completions 3
Gas wells 3

THROCKMORTON COUNTY

H. A. Wilhelm, Holder & Gordon 1 .... dry
D. McKeichan, Cox & Henderson Oil Co. 1 ..... dry
Swenson L. & C. Co., Swenson O. & G. Co. 1 ..... dry

Completions 3
Dry holes 3

WICHITA COUNTY

Thomas, Barkley & Meddows 1 ..... dry
Chilson, Gilbert et al 1 ..... dry
American Ref. Prop., T. F. Hunter et al 6 ..... dry
Barton, Stump et al 1 35

Completions 4
Production 35
Dry holes 3

YOUNG COUNTY

S. R. Jeffery, Ard, Jr., & Gilliam 1 .... dry
Belknap Coal Co., W. E. Barnhard 2 ... dry
Belknap Coal Co., W. E. Barnhard 3 ... dry
W. T. Finch Est.-C, F. H. E. Oil Co. et al 9 ..... dry
S. B. Kemp, Junker et al 1 ..... dry
Larimore, King Royalty Co. 18 106
S. R. Jeffery-A, Lee & Brashears 1 534
J. Price, McClung & Dawson 1 ..... dry
Belknap Coal Co., Peckham & Ard 1 .. dry
S. R. Jeffery, Putnam Oil Co. et al 1 .. dry
S. R. Jeffery-A, The Texas Company 2. 304
Baptist Church, Continental Oil Co. 1 .. 35
T. N. Criswell, Hynds & Parker 3 ..... dry
Williams-A, Long et al 2 ..... dry
V. R. Jordan, Roupe, Kessler & Manning 1 ..... dry
Morris, Simpson et al 1 ..... dry
E. C. Stovall, E. C. Stovall 13 120
J. R. Carpenter, N. B. Dollins 1 ..... dry
G. N. Hunter, McClung & Dawson 2 ... dry
Cantwell, Pennell & Harris 1 ..... dry
S. R. Jeffery, Putnam Oil Co. and Panhandle 2 ..... dry
J. G. Taack, Ernest Shamblin 1 ..... dry
Sanders, Sam Simmons 1 ..... dry
E. P. Tatum, The Texas Company 1 .. 57
Jeffery-A, The Texas Company and McKanna 4 ..... dry
C. J. Taack, Williams et al 6 10
G. A. Brown, Wise, Jackson and Devonian Oil Co. 1 ..... dry
Thomas, Young et al 1 ..... dry
Brashears, Knox et al 1 80
W. E. Hinson, Nash & Windfohr 6 334

Completions 30
Production 1580
Dry holes 22

WEST TEXAS FIELDS

Summary of Wells Completed

	Comp.	Prod.	Dry	Gas
Brewster	3	0	3	0
Culberson	1	0	1	0
Ector	1	449	0	0
Fisher	1	65	0	0
Irion	1	160	0	0
Jones	4	650	3	0
Loving	2	702	0	0
Pecos	5	1,179	1	0
Schleicher	1	0	1	0
Sterling	1	0	1	0
Terrell	3	0	3	0
Upton	3	1,117	0	0
Ward	1	240	0	0
Winkler	1	0	1	0
Total May	28	4,562	14	0
Total April	33	3,502	16	0
Difference	5	1,060	2	0

Rigs and Wells Drilling

	Rigs	S.D.	Drlg.	Ttl.
Crane	0	1	2	3
Crockett	0	0	0	0
Ector	0	2	0	2
Fisher	0	0	3	3
Glasscock	0	0	0	0
Howard	0	2	1	3
Irion	0	1	4	5
Jones	2	1	7	10
Loving	7	6	7	20
Pecos	2	2	5	9
Reagan	0	0	1	1
Upton	1	2	1	4
Ward	3	5	17	25
Winkler	0	1	0	1
Miscellaneous	0	30	11	41
Total May	15	53	59	127
Total April	13	56	64	133
Difference	2	3	5	6

WELLS COMPLETED
BREWSTER COUNTY

Jackson & Harmon, Cowden & Bowser 1-A ..... dry
Jackson & Harmon, J. M. Hickey et al 1 dry
McIntyre, McPhail & Kempter 1 ..... dry
CULBERSON COUNTY
Mrs. J. P. Seay, Cranfill Bros. and Carl Shoults 1 ..... dry
ECTOR COUNTY
J. M. Cowden & Co., Southern Crude O. P. Co. 2 449
FISHER COUNTY
Flannigan, Cranfill & Reynolds 2 65
IRION COUNTY
J. M. Nutt-A, F. E. Welch et al 1 160
JONES COUNTY
King, Jameson et al 1-A ..... dry
J. T. Chittum, B. A. Duffy 1 ..... dry
T. E. Sears, Julian O. & R. Co. et al 1 .. dry
S. W. King, Ungren & Frazier 1 650

Completions 4
Production 650
Dry holes 3

LOVING COUNTY

Ramsey et al, Pete Hoffman et al 1 ... 570
Glenn Salsbury, West Texas Pet. Corp. 1 132

Completions 2
Production 702

PECOS COUNTY

J. H. Tippett-E (Kirby), Cardinal Oil Co. 7 240
W. D. Riser, Cosby Prod. & Roy. Co. 1 dry
J. H. Tippett (Humble), Southern Oil Corp. 3 100
Monroe, Corvette Oil Corp. 3 580
J. H. Tippett Lease 1, California Co. 1. 259

Completions 5
Production 1179
Dry holes 1

SCHLEICHER COUNTY

G. C. Allison, W. Gant & Texas 1 ..... dry

STERLING COUNTY

W. L. Foster, W. C. Beesley et al 1 ... dry

TERRELL COUNTY

Hamilton & White, Keck Pecos Trust Co. 1 ..... dry
Sam Belt, Mrs. J. B. McPhee 1 ..... dry
Allison & Murke, Miller Bros. 1 ..... dry

UPTON COUNTY

H. L. McClintic, C. C. Duffey et al 4 .. 90
H. L. McClintic, Weekley Oil Corp. et al 2 870
J. T. McElroy, Gulf Production Co. 157. 157

Completions 3
Production 1117

WARD COUNTY

J. F. Boogher, Chester Smith et al 1.. 240

WINKLER COUNTY

M. J. Bashara, Magnolia Pet. Co. 1 ... dry

PANHANDLE FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carson	6	0	0	6
Gray	7	1,229	0	0
Hutchinson	5	466	0	2
Moore	3	0	0	3
Potter	1	0	0	1
Wheeler	1	0	1	0
Total May	23	1,695	1	12
Total April	23	5,989	4	7
Difference	0	4,294	3	5

Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Carson	2	3	4	9
Gray	7	5	9	21
Hutchinson	2	3	3	8
Moore	7	1	2	10
Wheeler	1	1	0	2
Miscellaneous	1	3	3	7
Total May	21	15	21	57
Total April	16	22	28	67
Difference	5	8	7	10

WELLS COMPLETED
CARSON COUNTY

M. P. Co. fee, Hagy & Harrington 1 ... gas
Bivins-A, Red River Gas Co. 5 ..... gas
S. B. Burnett (Sec. 108), Texts Int. P. L. Co. 1 ..... gas
T. L. Coffee, Interstate Prod. Co. 1 ... gas
Burnett (Sec. 80), No. American O. & G. Co. 1 ..... gas
Schafer, The Texas Company Co. 1 .... gas

Completions 6
Gas wells 6

GRAY COUNTY

Morse, Adams & Prince et al 1 100
Sullivan, Danciger O. & R. Co. 1 25
Sullivan, Danciger O. & R. Co. 2 40
Eddington, Magnolia Pet. Co. 1 60
C. S. Barrett, Magnolia Pet. Co. 1 20
W. C. Heaton, Skelly Oil Co. 1 504
T. B. Cobb, Stanolind O. & G. Co. 2 ... 480

Completions 7
Production 1229

HUTCHINSON COUNTY

Moore, Continental Oil Co. 1 140
Johnson Bros.-A, Prairie O. & G. Co. 69 gas
Sanford, Antelope Creek Oil Co. 4 ..... gas
Pitcher-A, Stanolind O. & G. Co. 2 250
J. W. Moore, The Texas Company 1 ... 75

Completions 5
Production 465
Gas wells 2

MOORE COUNTY

Brown, Continental Oil Co. 1 ..... gas
C. L. Kilgore, Gulf Production Co. 2 .. gas
L. Bivins, Plains Holding Co. 1 ..... gas

Completions 3
Gas wells 3

POTTER COUNTY

Crawford-B, Canadian River Gas Co. 1-A ..... gas

WHEELER COUNTY

J. M. Porter, Vollmert 1 ..... dry

SOUTHWEST TEXAS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Drlg.	Ttl.
Mirando	16	1,100	6	2	1	5	6
Pettus	1	300	0	0	1	4	5
Dobrowolski	1	5	0	0	0	3	3
Darst Creek	1	350	0	0	0	0	0
Unit Pool	0	0	0	0	0	0	0
Cartwright	1	0	1	0	0	1	1
Chittim	1	0	0	1	0	1	1
Saxet	0	0	0	0	0	5	5
Somerset	0	0	0	0	0	0	0
Eddington	0	0	0	0	0	0	0
McFadden	0	0	0	0	0	0	0
Chapman	3	90	1	0	0	1	1
Luling	0	0	0	0	0	0	0
White Point	1	0	1	0	0	1	1
Bruner	0	0	0	0	0	1	1
Lasater	1	0	1	0	0	0	0
Pryor	1	0	0	1	0	0	0
Slick	0	0	0	0	0	0	0
Agua Dulce	1	0	0	1	0	0	0
Three Rivers	1	0	1	0	0	0	0
Miscellaneous	35	6	34	1	14	81	97
Ttl. May	64	1,852	45	6	16	103	121
Ttl. Apr.	88	8,941	62	5	14	110	124
Difference	24	7,089	17	1	2	7	3

WELLS COMPLETED
COLE POOL—DUVAL COUNTY

King-Harper, Southern Oil Co. 2 ..... abd
SCHOOLFIELD-O'BYRNE POOL — DUVAL COUNTY
Wilson, Magnolia Petroleum Co. 3 300
Bishop Duval Land Co., The Texas Company 325
CAROLINE-TEXAS POOL—WEBB COUNTY
Barnsley, Carolina-Texas Oil & Gas Co. 9 ..... gas
C. W. Webster, George S. Marshall 1 .. 75
WILDCATS—STARR COUNTY
Kelsey Bass, Willard Oil & Gas Co. 2.. abd
ESCOBAS-MUCKELROY POOL—ZAPATA COUNTY
I. G. Trevino, P. H. Meyers 1 ..... abd
I. G. Trevino, J. I. Newton 3 ..... abd
Jose Bustamente, Nordan & Morris 1 .. 200
Garcia, O. & A. Co. 3 100
Trevino, Trevino Oil Co. 8-A 50
JENNINGS-MUCKELROY POOL—ZAPATA COUNTY
A. Bustamente, O. W. Killam 7 40
A. Bustamente, O. W. Killam 6 10
CUELLAR POOL—ZAPATA COUNTY
Cuellar, O. W. Killam 40-C ..... abd
WILDCATS—ZAPATA COUNTY
Montemayor, E. C. Brogan 1 ..... abd
P. Benavides, Lowe & Rogers 2 ..... gas

Wells completed 16
Production 1100
Dry 6

PETTUS AREA—BEE COUNTY

Ray, United Production Co. 33 300
DOBROWOLSKI POOL—BEXAR COUNTY
Sandemier, Swearingen and others 10 .. 6
DARST CREEK—GUADALUPE COUNTY
M. T. Klein, Magnolia Petroleum Co. 8. 350
CARTWRIGHT POOL—LIVE OAK COUNTY
Brown Land Cattle Co., Houston Oil Co. 4 ..... abd
CHITTIM POOL—MAVERICK COUNTY
Chittim, Texas Gas Utilities Co. 6 .... gas
LASATER POOL—BROOKS COUNTY
Wormser, Houston Oil Co. 3 ..... abd
SLICK POOL—GOLIAD COUNTY
W. H. Riedel, Slick Estate 1 ..... abd
AGUA DULCE POOL—NUECES COUNTY
Ollie Purl, Houston Oil Co. 1-B ..... gas
THREE RIVERS—LIVE OAK COUNTY
Wedding, Simmon Oil Co. 1 ..... abd
WHITE POINT FIELD—SAN PATRICIO COUNTY
J. B. Cage, United Production Co. 3 .. abd
CHAPMAN POOL—WILLIAMSON COUNTY
B. Lawrence et al 2 ..... abd
J. C. Abbot, Ertel et al 8 50
J. C. Abbot, Ertel et al 9 40

Wells completed 3
Production 90
Dry 1

PRYOR POOL—ZAVALA COUNTY

Pryor, Texas Gas Utilities Co. 5 ...4,000,000
MISCELLANEOUS COUNTIES
Wildcats—Atascosa County—
J. W. Harrison, Pacific Oil & Gas Co. 1. abd
Wildcats—Bastrop County—
J. C. Williams, Texas Petroleum Co. 1. 6
J. E. Harris, Turner, Wharton & Anderson 1 ..... abd
Wildcats—Bee County—
Miller, Catlett & O'Neil 1 ..... abd
Wildcats—Bexar County—
Palfrey, Ueckert et al 1 ..... abd
O. A. Mills, Russell & Moore 3 ..... abd
Wildcats—Blanco County—
Stanford, Hardy Sitton 1 ..... abd
Wildcats—Brooks County—
B. Garcia, Ed East 3 ..... abd
Wildcats—Caldwell County—
Strawn, J. A. Harper 1 ..... abd.
Wildcats—Edwards County—
A. G. Holman, Phillips Petroleum Co. 2 abd
Wildcats—Frio County—
Burns estate, A. H. Wray 1 ..... abd
Wildcats—Goliad County—
A. T. Fromme, A. G. Riemenschneider 1 abd
Cyrus Parks, Gibson Oil Co. 1 ..... abd
Wildcats—Gonzales County—
Martin, Weal Oil Co. 1 ..... abd
J. M. Cowley estate, Linden Petroleum Co. 1 ..... abd
Wildcats—Jim Wells County—
G. Farris, E. W. Ogden 1 ..... abd
Schaffer, Gulf Production Co. 3 ..... abd
Cuero Cattle Co., Smith-Clark Co. 1 ... abd
McGill, Carsil Oil & Gas Co. 2 ..... abd
Wildcats—Karnes County—
W. J. Hubbard, Karnes County Development Co. 1 ..... abd
Wildcats—Kendall County—
J. Lawhon, R. M. Perkins 1 ..... abd
Wildcats—Live Oak County—
W. D. Snyder, Houston Oil Co. 1 ..... abd
Parr, Houston Oil Co. 1-A ..... abd
Wildcats—Medina County—
Howard, National Oil Co. 1 ..... abd
W. B. Odom, J. H. Hickey 1 ..... abd
Wildcats—McMullen County—
J. O. Massey, Stanolind Oil & Gas Co. 1. abd
Wildcats—Milam County—
Ward, Kyser, Roberts & Dibble 2 ..... abd
W. R. Littleton, J. E. McKee et al 1 .. abd
Wildcats—San Patricio County—
E. Welder, Aransas Oil Corp. 1 ..... gas
Baldwin, Geo. B. Pickett 1 ..... abd
Wildcats—Travis County—
M. Engleman, Fort Bend Oil Co. 1 ... abd
William Smith, Taylor Temple Oil Co. 1 abd
Oswald, Marts et al 1 ..... abd
Wildcats—Williamson County—
L. W. Fuchs, Fritz Fuchs 1 ..... abd
Wildcats—Wilson County—
John Reuss, Stover & Wren 1 ..... abd
Wildcats—Victoria County—
McFadden, Lion Oil Refining Co. 3-A .. abd

EAST TEXAS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Bowie	0	0	0	0	1	3	4
Camp	0	0	0	0	0	1	1
Cass	0	0	0	0	2	7	9
Harrison	1	0	1	0	5	7	12
Marion	0	0	0	0	1	4	5
Panola	2	0	2	0	5	7	12
Red River	0	0	0	0	0	2	2
Shelby	0	0	0	0	3	8	11
Total May	3	0	3	0	17	39	56
Total Apr.	12	0	11	1	12	31	43
Difference	9	0	8	1	5	8	13

EAST TEXAS (Border Counties)
WELLS COMPLETED
HARRISON COUNTY

J. H. Chaffin Sur., Hays, Wm. H. Atkinson 1 ..... dry
PANOLA COUNTY
Alanson Barr Sur., McDaniels, Everett Pro. Co. 1 ..... dry
John Womack Sur., Brumble, The Texas Co. 12 ..... dry

NORTH LOUISIANA

Summary of Field Operations

	Comp.	Prod.	Dry	Gas*	Rigs	Drlg.	Ttl.
Bienville	1	0	1	0	0	1	1
Bossier	1	0	0	1	2	5	7
Caddo	1	0	0	1	2	7	9
Caldwell	0	0	0	0	1	1	2
Catahoula	0	0	0	0	0	1	1
Claiborne	1	0	1	0	0	1	1
Concordia	1	0	1	0	0	1	1
De Soto	2	0	2	0	1	4	5
Morehouse	0	0	0	0	1	0	1
Natchotoches	0	0	0	0	0	4	4
Ouachita	0	0	0	0	2	0	2
Red River	1	0	1	0	0	2	2
Richland	5	0	0	5	5	5	10
Sabine	9	3,553	4	0	5	25	30
Tensas	0	0	0	0	0	1	1
Union	2	0	0	2	0	0	0
Webster	1	0	1	0	1	1	2
West Carroll	0	0	0	0	0	1	1
Total May	25	2,553	11	9	20	60	80
Total Apr.	27	590	12	8	22	57	79
Difference	2	1,963	1	1	2	3	1

*Gas production: Bossier, 8,760,000; Caddo, 38,516,000; Richland, 144,368,000; Union, 10,217,000; total, 201,861,000.

WELLS COMPLETED
BIENVILLE PARISH

15-16-8 Lawhon, Coyle Bros. 1..... dry
BOSSIER PARISH
22-19-11 Kendrick, H. I. Morgan 13-A. abd
24-17-12 Murff, United Gas Public Service Co. 2..... gas

Wells completed 2
Gas 1
Abandoned 1
Gas production 8,760,000
CADDO PARISH
27-23-16 Emmons, United Prod. Co. 1.. gas

Wells completed 1
Gas 1
Gas production 38,516,000

CLAIBORNE PARISH

30-20-7 Whittaker, Baird Bros. et al 1 dry

CONCORDIA PARISH

35-3-8 Maxwell, Joe Marr et al 1..... dry

DE SOTO PARISH

5-12-11 Nabora, Dupree Fountain 1.... dry
33-13-16 Ramsey, C. D. Neff et al 1.... dry

RED RIVER PARISH

33-12-10 Chappraix, Lucky Strike Oil 1. dry

RICHLAND PARISH

33-16-5 Noble hrs., Hope Prod. Co. 2... gas
24-17-5 Rosengrant & Ducomb, Southern Carbon Co. 1 ..... gas
23-16-6 Thomason, Southern Carbon 2-B gas
36-17-6 J. O'Neal, Southern Carbon 1.. gas
12-16-5 Mann, United Carbon Co. 1.... gas

Wells completed 5
Gas 5
Gas production 144,368,000

SABINE PARISH

1- 7-12 Sabine Lbr. Co., H. H. Alvord, Jr. 1 ..... dry
1- 7-12 Sabine Lbr. Co., W. M. Coates 3 50
1- 8-12 Polley, Durham Oil Co. 1..... dry
11-17-15 Hatcher, Garry M. Gordon 1.. abd
15- 7-11 Ponder, Lide et al 1..... 3
15- 7-11 Ponder, Lide et al 2..... abd
1- 7-11 Byrd, Lyons & Neely 1.....1200
2- 7-12 Bowman-Hicks, Ohio Oil Co. 8 100
3- 7-11 La. Long Leaf Lbr. Co., Pelican Nat. Gas Co. 9..... dry
33- 8-11 Stille, The Texas Co. 3.....1200
12- 8-12 Sabine Lbr. Co., Jno. Woodley 1 dry

Wells completed 11
Production 2553
Dry and abandoned 6

UNION PARISH

26-20-3 United States Government, Fred A. Green 1 ..... gas
24-22-3 McGaugh, Nemours Corp. 1.... gas

Wells completed 2
Gas 2
Gas production 10,217,000

WEBSTER PARISH

11-23-9 Matthews, Red Hawk Oil Co. 1 dry

ARKANSAS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Chicot	0	0	0	0	0	1	1
Clay	0	0	0	0	0	1	1
Cleburne	0	0	0	0	0	1	1
Columbia	0	0	0	0	0	2	2
Dallas	0	0	0	0	0	2	2
Garland	1	0	1	0	0	0	0
Grant	0	0	0	0	0	1	1
Hot Springs	0	0	0	0	0	1	1
Lafayette	2	0	2	0	0	1	1
Lawrence	0	0	0	0	1	0	1
Lincoln	0	0	0	0	0	1	1
Little River	0	0	0	0	1	0	1
Logan	0	0	0	0	0	1	1
Miller	1	0	1	0	3	4	6
Ouachita	0	0	0	0	0	2	2
Pike	0	0	0	0	0	2	2
Pope	2	0	2	0	0	0	0
Scott	0	0	0	0	0	2	2
Union	2	250	1	0	2	5	7
Van Buren	0	0	0	0	0	1	1
Washington	0	0	0	0	0	2	2
Yell	0	0	0	0	0	1	1
Total May	8	250	7	0	6	31	37
Total Apr.	11	943	4	1	7	31	38
Difference	3	693	3	1	1	0	1

WELLS COMPLETED

GARLAND COUNTY

1-3-19 Garrett, H. H. Givens 1..... dry

LAFAYETTE COUNTY

1-20-26 Hattie, McIver 1 ..... dry
16-15-22 Reed, Smitherman & McDonald dry

MILLER COUNTY

26-15-26 Adams, Gusher Bend Oil Co. 1 dry

POPE COUNTY

11-7-20 Baird, Ark.-La. P. L. Co. 1.... dry
15-9-21 McFaddin, Ark.-La. P. L. Co. 2 dry

UNION COUNTY

7-17-15 Watley, Rice et al 1..... dry
3-18-13 Parker, Wilson & Chapman 1. 250

MISSISSIPPI FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas*	Rigs	Drlg.	Ttl.
Clark	1	0	1	0	0	0	0
Clay	0	0	0	0	0	1	1
Grenada	1	0	1	0	0	0	0
Hinds	2	0	1	1	1	3	4
Jasper	0	0	0	0	0	1	1
Monroe	0	0	0	0	0	2	2
Noxubee	0	0	0	0	1	0	1
Rankin	1	0	1	0	2	3	5
Scott	0	0	0	0	1	0	1
Warren	2	0	2	0	0	1	1
Winston	0	0	0	0	0	1	1
Yalobusha	0	0	0	0	0	1	1
Total May	7	0	6	1	5	13	18
Total Apr.	11	0	7	4	7	19	26
Difference	4	0	1	3	2	6	8

*Gas production: Hinds County, 25,000,000.

WELLS COMPLETED

CLARKE COUNTY

11-2-15 Box, Gulf Ref. Co. 1..... dry

GRENADA COUNTY

18-22-4 Dubard, Carter Oil Co. 2..... dry

HINDS COUNTY

4-5-1 I. C. R. R., Industrial G. & E. 1 gas
27-6-1 Payne, Pirtle & Flint 1..... dry

Wells completed 2
Gas 1
Gas production 25,000,000

RANKIN COUNTY

28-6-2 Interior Lbr. Co., Love Pet. Co. 1 dry

WARREN COUNTY

16-17-4 Henry, Dixie Pet. Co. 1..... dry
8-18-5 Dornbush, Vicksburg O. & G. 1 dry

GULF COAST FIELDS

Summary of Field Operations

Texas Coast

Field—	Comp.	Prod.	Abd.	Gas	Rigs	Drlg.	Ttl.
Allen	1	0	1	0	0	1	1
Barbers Hill	11	9,713	3	0	1	19	20
Batson	1	4	0	0	0	0	0
Big Creek	1	0	1	0	0	0	0
Blue Ridge	1	200	0	0	0	1	1
Clay Creek	2	0	2	0	0	2	2
Esperson	1	0	1	0	0	2	2
Goose Creek	1	150	0	0	0	0	0
Hankamer	1	1,425	0	0	0	1	1
High Island	0	0	0	0	0	1	1
Hull	1	300	0	0	0	0	0
Humble	6	70	5	0	0	4	4
Lost Lake	0	0	0	0	0	1	1
Moss Bluff	4	0	4	0	0	2	2
Nash	1	0	1	0	0	0	0
North Dayton	2	1,500	1	0	0	1	1
Orange	1	65	0	0	0	0	0
Orchard	0	0	0	0	0	1	1
Pierce Jct.	3	2,935	0	0	1	1	2
Refugio	12	2,126	5	1	2	13	15
Saratoga	4	182	0	0	0	1	1
Miscellaneous	12	400	11	0	2	27	29
Ttl. May	66	19,070	35	1	6	78	84
Ttl. Apr.	57	20,863	21	0	12	90	102
Difference	9	1,793	14	1	6	12	18

Louisiana Coast

Bayou Blue	1	0	1	0	1	1	2
Bayou B'ill'n	1	0	1	0	0	0	0
Edgerly	0	0	0	0	0	1	1
Hackberry	1	0	1	0	0	1	1
Lockport	2	415	0	0	0	3	3
Port Barre	1	350	0	0	1	0	1
Starks	0	0	0	0	0	1	1
Sulphur	2	2,900	0	0	0	2	2
Sweet Lake	1	1,250	0	0	0	1	1
Welsh	1	10	0	0	0	0	0
Vinton	1	120	0	0	0	2	2
Miscellaneous	4	1,400	3	0	1	15	16
Ttl. May	15	6,445	6	0	3	27	30
Ttl. Apr.	23	5,000	15	0	1	31	32
Difference	8	1,445	9	0	2	4	2
Gulf C. May	81	25,513	41	1	9	105	114
Gulf C. Apr.	80	25,863	36	0	13	121	134
Difference	1	350	5	1	4	16	20

WELLS COMPLETED

ALLEN—BRAZORIA COUNTY

Allen, Mills Bennett Production Co. 1 . abd

BATSON—HARDIN COUNTY

Gulf fee (Brice), East Batson Oil Co. 1 4

BARBERS HILL—CHAMBERS COUNTY

Gulf Smith, Bilis Bennett Production Co. 1 540
Wilburn, Gulf Production Co. 1 ..... abd
J. F. Wilburn, Humphreys Corp. 2 1200
E. H. Winfree, Mumphreys Corp. 1 1875
E. H. Winfree, Humphreys Corp. 2 1500
E. H. Winfree, Humphreys Corp. 3.....2390
E. H. Winfree, Humphreys Corp. 4 1600
Wilburn fee, Sun Oil Co. 14 ..... abd
Wilburn, The Texas Company 5 ..... abd
Chambers, Yount Lee Oil Co. 15 98
Chambers, Yount Lee Oil Co. 19 510

Wells completed 11
Production 9713
Abandoned 3

BIG CREEK—FORT BEND COUNTY

Davis, Gulf Production Co. 52 ..... abd

BLUE RIDGE—FORT BEND COUNTY

Blakely, Doney & Means 1 200

CLAY CREEK—WASHINGTON COUNTY

Janner, Sun Oil Co. 5 ..... abd
W. F. Schlottman 3 ..... abd

ESPERSON—LIBERTY COUNTY

Kirby fee, Cranfill-Reynolds Co. 1-C .. abd

GOOSE CREEK—HARRIS COUNTY

John Gaillard, Gulf Production Co. 12-B 150

HANKAMER—LIBERTY COUNTY

Boyt, Gulf Production Co. 13 1425

HULL—LIBERTY COUNTY

Dolbear, Republic Production Co. 113.. 300

HUMBLE—HARRIS COUNTY

Tuffly, M. LaRue 1 ..... abd
Perkins, Southern Coastal Oil Co. 2 .. 70
Bender, Sun Oil Co. 22 ..... abd
Bender, Sun Oil Co. 23 ..... abd
O'Connor, Sun Oil Co. 1 ..... abd
Rosenbaum, Trapshooter Riley Oil Co. 2 abd

Wells completed 6
Production 70
Abandoned 5

MOSS BLUFF—LIBERTY COUNTY

Cowan, Texas Gulf Sulphur Co. 1 ..... abd
Harrison, Texas Gulf Sulphur Co. 1 ... abd
V. R. McManus, Texas Gulf Sulphur Co. 1 ..... abd
Munger, Texas Gulf Sulphur Co. 1 .... abd

Wells completed 4
Abandoned 4

NASH—FORT BEND COUNTY

Wisdom, Rycade Oil Corp. & J. S. Abercrombie 5 ..... abd

NORTH DAYTON—LIBERTY COUNTY

Schindler, M. L. Gray 1 ..... abd
Gulf fee, Victor Oil Co. 1 1500

Wells completed 2
Production 1500
Abandoned 1

ORANGE—ORANGE COUNTY

McLean, Brownie-Babbett Oil Co. 3 ... 65

PIERCE JUNCTION—HARRIS COUNTY

G. H. & S. A., Rio Bravo Oil Co. 102 .. 420
Settegast, Rio Bravo Oil Co. 21-A ...2500
Bender fee, Smith et al 2 15

Wells completed 3
Production 2935

REFUGIO—REFUGIO COUNTY

Wilson Heard, Houston Oil Co. 5 ..... abd
Rose Lambert, Houston Oil Co. 3 ..... abd
Pratt-Hewitt-Rooke, Houston Oil Co. 14 abd
O'Connor, Moody-Seagraves Producing Co. 8 600
Shelly, Moody-Seagraves Producing Co. 1 102
Cable, Saxet Oil Co. 3 250
O'Brien, United Production Corp. 9 .. gas
Fox, United Production Corp. 1-A 910
A. Fox, United Production Corp. 3 .... abd
A. W. J. Heard, United Production Corp. 6-A 24
Power, United Production Corp. 6 200
Rose Lambert, United Production Corp. 2-A ..... abd

Wells produced 12
Production 2126
Abandoned 5
Gas 1

SARATOGA—HARDIN COUNTY

Cotton, Rio Bravo Oil Co. 101-A 30
Cotton, Rio Bravo Oil Co. 114-A 9
Cotton, Rio Bravo Oil Co. 115-A 73
Cotton, Rio Bravo Oil Co. 116-A 70

Wells completed 4
Production 182

MISCELLANEOUS TEXAS

Austin County—

San Felipe—Kuntze, Empire Gas & Fuel Co. 1 ..... abd

Brazoria County—

Stratton Ridge—Seaburn, Rycade & Amerada 2 ..... abd
H.T.&W. Survey No. 3, Faust, Tom Faust et al 5 ..... abd

Fort Bend County—

Clear Lake—Lockwood, H. R. Cullen 1. 400

Jefferson County—

McFaddin, Humble Oil & Refining Co. 1 ..... abd
Westbury—Reed-Hankamer, Keith et al 1 ..... abd
Big Hill—Pipkin, The Texas Company 4 abd

Matagorda County—

Shepherds Mott—Hawkins, H. C. Cockburn 2 ..... abd

Orange County—

Mansfield, Crew Oil Co. 1 ..... abd

Tyler County—

James Seals Sur., Long Bell Lumber Co. 1 ..... abd

Wharton County—

A. J. Fry Sur., Poole, Poole & Chappell 1 ..... abd
G.H.&H. Sur. No. 20, Lee, Poole &Chappell 1 ..... abd

Wells completed 12
Production 400
Abandoned 11

SOUTH LOUISIANA

BAYOU BLUE—IBERVILLE PARISH

Baist, Standard Oil Co. 1 ..... abd

BAYOU BOUILLON—ST. MARTIN PARISH

State, Humble Oil & Refining Co. 4 ... abd

HACKBERRY—CAMERON PARISH

Hebert, Federal Petroleum Co. 2 ..... abd

LOCKPORT—CALCASIEU PARISH

Miller, Vacuum Oil Co. 12 65
Miller, Vacuum Oil Co. 31 350

PORT BARRE—ST. LANDRY PARISH

Botney Bay, The Texas Company 9 ... 350

SULPHUR—CALCASIEU PARISH

Fee, Union Sulphur Co. 762 1400
Fee, Union Sulphur Co. 766 1500

SWEET LAKE—CAMERON PARISH

Yount Lee, Pure Oil Co. 10 1250

WELSH—JEFF DAVIS PARISH

Smith, A. V. Peters 1 10

VINTON—CALCASIEU PARISH

Matilda Gray, Vinton Petroleum Co. 11. 120

MISCELLANEOUS LOUISIANA

LaFourche Parish—

Leesville—L.L.&E., The Texas Company 2 1400

Plaquemines Parish—

Lake Grand Ecaille—Cockrell-Moran, Humble Oil & Refining Co. 2 ..... abd

Terrebonne Parish—

Four Isle—L.L.&E., The Texas Company 5 ..... abd

Vernon Parish—

Sec. 14-2n-11w, Delta, Smith & Wier 1. abd

Wells completed 4
Production 1400
Abandoned 3

KENTUCKY FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Barren	0	0	0	0	0	2	2
Ohio	3	110	1	0	3	26	29
Daviess	2	0	2	0	0	15	15
Hancock	1	0	1	0	0	6	6
Henderson	0	0	0	0	0	2	2
McLean	0	0	0	0	7	0	7
Hart	5	550	1	1	0	15	15
Edmonson	0	0	0	0	0	1	0
Hopkins	0	0	0	0	0	2	2
Union	0	0	0	0	0	2	2
Todd	0	0	0	0	0	1	1
Muhlenburg	2	0	2	0	0	3	3
Caldwell	0	0	0	0	0	1	1
Greene	0	0	0	0	0	1	1
Cumberland	0	0	0	0	0	2	2
Butler	1	0	1	0	0	0	0
Taylor	0	0	0	0	0	1	1
Carroll	1	0	0	1	2	1	3
Wayne	0	0	0	0	0	2	2
Estill	0	0	0	0	0	3	3
Lee-Owsley	0	0	0	0	0	3	3
Lawrence-Johnson	0	0	0	0	0	3	3
Johnson-Magoffin	0	0	0	0	0	4	4
Clay	1	0	0	1	0	0	0
Knox	1	0	0	1	0	0	0
McCracken	0	0	0	0	0	1	1
Madison	0	0	0	0	0	1	1
Bell	1	0	0	1	0	0	0
Total May	18	660	8	5	12	98	110
Total Apr.	66	3,348	24	11	12	129	141
Difference	48	2,688	16	6	0	31	31

WELLS COMPLETED

OHIO COUNTY

Hartford—J. T. Griffith, Kentucky Nat. Gas 7 ..... dry
V. Steel 125-A, C. Mel Root 14 60
Cicero Wade, Cumberland Petroleum 12 50

Wells completed 3
Production 110
Dry 1

DAVIESS COUNTY

Owensboro—M. D. Wells, E. L. Newton & Co. 1, 2..... dry

Wells completed 2
Dry 2

HANCOCK COUNTY

Pellville—C. Bolling, Hupp, Duff & Co. 2 dry

HART COUNTY

Horse Cave—Eli Bradley, Clarence Bundy & Co. 3 350
Babe Wilson, H. Z. Clark 1 100
Babe Wilson, H. Z. Clark 2 100
Walker Malone, Unknown parties 1... gas
Less Smith, J. B. Miles & Co. 1 ..... dry

Wells completed 5
Production 550
Dry 1
Gas 1

MUHLENBURG COUNTY

Greenville—H. F. Lee, H. & K. Producers Co. 3, 4 ..... dry

Wells completed 2
Dry 2

BUTLER COUNTY

Near Rochester—Ellis & Young 1 ..... dry

CARROLL COUNTY

Carrollton—B. F. McDonald, G. M. C. Oil & Gas 1 ..... gas

CLAY COUNTY

Manchester—W. S. Allen, Petroleum Exploration 1 ..... gas

KNOX COUNTY

Barbourville—North Jellico Coal, Petroleum Exploration 5 ..... gas

BELL COUNTY

Red Bird—J. A. Hemminger, T. J. Asher 2 ..... gas

ROCKY MOUNTAIN AREA

NEW MEXICO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Chaves	0	0	0	0	0	2	2
De Baca	0	0	0	0	0	1	1
Eddy	0	0	0	0	1	2	3
Lea	1	0	1	0	1	6	7
McKinley	0	0	0	0	0	5	5
Rio Arriba	0	0	0	0	0	2	2
San Juan	0	0	0	0	1	9	10
San Miguel	0	0	0	0	0	5	5
Torrance	0	0	0	0	0	2	2
Valencia	1	0	1	0	0	1	1
Miscellaneous	0	0	0	0	1	9	10
Total May	2	0	2	0	4	44	48
Total April	3	5,412	2	0	8	47	55
Difference	1	5,412	2	0	4	3	7

WELLS COMPLETED

5-6n-2e Harlan, Thomas B. Harlan et al 3 ..... dry
17-17-34 Bridges, Western Drilling Co. 1 ..... dry

Wells completed 2
Dry and abandoned 2

MONTANA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Carbon	0	0	0	0	1	6	7
Cascade	0	0	0	0	0	2	2
Choteau	0	0	0	0	0	2	2
Fergus	0	0	0	0	0	5	5
Glacier	0	0	0	0	1	5	6
Hill	1	0	1	0	1	4	5
Judith Basin	0	0	0	0	0	2	2
Liberty	0	0	0	0	0	5	5
Pondera	0	0	0	0	0	2	2
Rosebud	0	0	0	0	0	2	2
Teton	0	0	0	0	1	3	4
Toole	3	21	1	1	4	11	15
Miscellaneous	0	0	0	0	2	17	19
Total May	4	21	2	1	10	66	76
Total April	4	0	4	0	10	59	69
Difference	0	21	2	1	0	7	7

WELLS COMPLETED

34-33-2w Lutz, Johnson et al 1 ..... gas
14-32-2w Hoyt, Nepstad-Vander-Pas 1. dry
19-35-1w Bluhm, Imperial Oil Co. 9 ... 21
34-33-12 Carruth, Jones & Perkins 1 .. dry

Wells completed 4
Production 21
Gas 12,000,000
Dry and abandoned 2

COLORADO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Fremont	0	0	0	0	0	12	12
La Plata	0	0	0	0	0	3	3
Larimer	0	0	0	0	5	5	10
Las Animas	0	0	0	0	1	3	4
Moffat	0	0	0	0	2	3	5
Montezuma	0	0	0	0	0	3	3
Morgan	0	0	0	0	0	2	2
Rio Blanco	0	0	0	0	2	2	4
Routt	0	0	0	0	1	2	3
Weld	0	0	0	0	0	2	2
Miscellaneous	0	0	0	0	1	31	32
Total May	0	0	0	0	12	68	80
Total April	4	200	0	2	14	71	85
Difference	4	200	0	2	2	3	5

WYOMING

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Salt Creek	0	0	0	0	0	1	1
Big Horn	0	0	0	0	0	5	5
Carbon	0	0	0	0	1	10	11
Converse	0	0	0	0	1	4	5

Fremont	0	0	0	0	0	6	6
Hot Springs	0	0	0	0	0	2	2
Johnson	0	0	0	0	0	2	2
Laramie	0	0	0	0	1	0	1
Lincoln	0	0	0	0	0	2	2
Natrona	0	0	0	0	1	7	8
Niobrara	0	0	0	0	0	3	3
Park	1	0	1	0	4	11	15
Sweetwater	0	0	0	0	1	8	9
Sublet	0	0	0	0	0	8	8
Washakie	0	0	0	0	0	1	1
Uinta	0	0	0	0	0	6	6
Weston	3	150	1	0	4	7	11
Total May	4	150	2	0	13	83	96
Total April	9	1,377	0	1	14	86	100
Difference	5	1,227	2	1	1	3	4

WELLS COMPLETED

33-46-64 McCullough, Wytex Oil Co. 4. 100
1-45-64 Decker Oil Co. 1 ..... dry
14-46-64 Chadron-Osage 12 50
24-58-98 Rosenberg, Midwest Ref. Co. 31 ..... dry

Wells completed 4
Production 150
Dry and abandoned 2

UTAH

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Total May	1	0	1	0	1	19	20
Total April	0	0	0	0	0	20	20
Difference	1	0	1	0	1	1	0

WELLS COMPLETED

17-43-15 Mid-American Oil Co. 1 ..... dry

EASTERN FIELDS

Summary of Completed Work

Fields—	Comp.	Prod.	Dry	Gas
Allegany	4	3	0	1
Bradford	18	29	0	0
Venango-Clarion	6	4	0	2
Butler-Armstrong	4	7	1	0
Tioga	22	0	4	18
S. W. Pennsylvania	8	1	2	5
Southeast Ohio	24	321	7	5
West Virginia	41	11	3	31
Total May	127	376	17	62
Total April	90	77	24	38
Difference	37	299	7	24

Summary of Work Under Way

Fields—	Rigs	Drlg.	Ttl.
Allegany	1	7	8
Bradford	1	13	14
Venango-Clarion	1	3	4
Butler-Armstrong	1	2	3
Tioga	11	50	61
S. W. Pennsylvania	0	2	2
Southeast Ohio	10	24	34
West Virginia	10	34	44
Total May	34	142	176
Total April	40	142	182
Difference	6	0	6

WELLS COMPLETED
ALLEGANY

Fee, George H. Zink 1
Fee, Ryder & Richmond Oil Corp. 2
Sherwood, C. L. Wann et al ..... pressure
Childs, First Natl. Bank Bolivar 18 ... gas

Completions 4
Production 3
Gas 1
Pressure 1

BRADFORD

Bingham 368, Wilson & Fitzgibbons 36.. 2
Fee, Margaret Galt 66 1
Freeman, Stuchel & Freeman 41 2
Corwin, Clara Simon 93 2
Franchot, F. M. Johnson & Son 2
Griffith, E. C. Tanner 1
Quintuple, F. Fesenmyer 1
Quintuple, Lou P. Mullhaupt 1
Quintuple, B. L. Brinton 1
Fee, K. R. Hankinson et al 5
Melvin, South Penn Oil Co. 1
Johnson, J. H. Brahaney 1
Borden, T. P. Thompson, Jr. ..... pressure
Brooks, F. M. Brooks 2
Hays, A. J. Van Tine 2 2
Quintuple, Healey Petroleum Corp. .. 1
O'Neil, Bali & Ryan 3
Richmond, Marilyn Oil Co. 1

Completions 18
Production 29
Pressure 1

VENANGO-CLARION

Shirey, Klingler & Exley 4 1
McCleary, B. Bell 1 ..... gas
Wolbert, Gribel & Huefner 1 ..... gas
Perrine, L. F. Perrine 20 1
James, Sutton, Folwell & Culver 7 1
James, Sutton, Folwell & Culver 8 1

Completions 6
Production 4
Dry 0
Gas 2

BUTLER-ARMSTRONG

Benig, Benig, Stewart et al 1 ..... dry
Meals, Carl Hilliard et al 1 5
Barkley, H. R. Edeburn 11 1
Neiman, Havenswood Oil Co. 1 1

Completions 4
Production 7
Dry 1

TIOGA

Olszewicski, Wittmer Oil & Gas Co. ... gas
Wyss, E. J. DeGolier ..... gas
Palmer, Allegheny Gas Co. No. 2 ..... gas
Boom, Lycoming Natural Gas Co. ..... gas
Ernst, Lamoka Power Corp. ..... gas
Engle, J. D. Engle ..... dry
Disbrow, Lamoka Power Co. ..... dry
Boom, Lycoming Natural Gas Co. ..... gas
Allen, International Salt Co. ..... gas
Wayne village, J. P. Cunningham Oil & Gas Co. ..... gas
Faucett, Oriskany Drilling Co. ..... gas
Gasper, Belmont Quadrangle Co. ..... gas
Hoyt, Lycoming Natural Gas Co. ..... gas
Millis, Belmont Quadrangle Co. ..... gas
Farcus, Reserve Oil Co. ..... dry
Shoederski, Belmont Quadrangle Co. .. dry
Ashton, Lycoming Natural Gas Co. ... gas
Smith, Crescent Producing Co. ..... gas
Close, Lycoming Natural Gas Co. .... gas
Ernst, Wittmer Gas Co. ..... gas
Gasper, Whitmore Oil & Gas Co. ..... gas
Learn, Allegheny Gas Co. ..... gas

Completions 22
Production 0
Dry 4
Gas 18

SOUTHWEST PENNSYLVANIA
COMPLETIONS
ALLEGHENY COUNTY

Lorish, Lorish Oil Co. 3 ..... ½

BEAVER COUNTY

Cooper, Hoffs Oil Co. 1 ..... gas

BUTLER COUNTY

Behning, Chas. Behning & Co. 1 ..... dry

GREENE COUNTY

Minor, Greensboro Gas Co. 1 ..... gas
Bowers, Carnegie Nat. Gas Co. 2 ..... gas
McGinnis, Manufacturers L. & H. Co. 1. gas

WASHINGTON COUNTY

Montgomery heirs, H. Furman et al 1. dry
Patterson, John Reed & Co. 2 ..... gas

SOUTHEAST OHIO
COMPLETIONS
ATHENS COUNTY

Hocking & Athens Coal Co., Hocking Valley Drilling Co. et al 3 200

COSHOCTON COUNTY

Mikesell, Preston Oil Co. 1 ..... dry
Wilt, Preston Oil Co. 1 ..... dry
Frazee, Preston Oil Co. 1 10
Griffon, Preston Oil Co. 1 ..... dry

GUERNSEY COUNTY

Davis, William Urban et al - ..... gas

JEFFERSON COUNTY

Lewis, Charles R. Jones 12 10

LICKING COUNTY

Atwood, E. J. Edmons et al 1 3

MEDINA COUNTY

Geisinger, Heines et al 1 ..... dry
Packard, E. R. Edson & Son Co. 14 8
Brown, Curtis & Eakin 4 10
Packard, E. R. Edson & Son Co. 15 ... 15
Geisinger, Heines et al 3 10
Franks, E. R. Edson & Son Co. 17 18

MUSKINGUM COUNTY

Slick, Hopewell Fuel & Gas Co. 1 20
Doty, Atha Oil Co. 1 ..... gas
Hale, Ohio Fuel Gas Co. 1 ..... gas

NOBLE COUNTY

Wells, Henderson Oil Co. 1 ..... gas

VINTON COUNTY

Moore, Co-Operative Oil Co. 1 ..... gas

WASHINGTON COUNTY

Morningstar, John T. Cleary et al 3... 2
Williamson, Fraseyburg Rex O. & G. Co. 1 15
Biehl, T. N. Curtis 9 ..... dry
Holshu, R. L. Wright 2 ..... dry
Palmer, A. E. Pryor 1 ..... dry

WEST VIRGINIA
COMPLETIONS
BOONE COUNTY

Cole & Crane Real Estate Co., Pond Fork O. & G. Co. 10 ..... gas
Anderson, Miller & Lang 4 ..... gas
Dent, J. V. Reishman 1 ..... gas

CABELL COUNTY

Swann, Larner Gas Co. P-86 ..... gas
Kinnard, General Gas Co. 1 ..... gas

CALHOUN COUNTY

Bennett, L. P. Bickel 1 ..... gas
Summers, C. B. Lewis et al 1 ..... gas
Poling, Tierney & Cain 1 1
Evans, E. M. Smith et al 1 ..... gas
Bennett, Hope Con. & Ref. Co. 1 ..... gas
Wilson, Wiseman & Jackson 1 ..... gas

DODDRIDGE COUNTY

Lemasters, Manufacturers Light & Heat Co. 1 ..... dry

GILMER COUNTY

Riberts, Clem Morris et al 1 ..... gas
Moore, McCall et al 1 ..... gas

HARRISON COUNTY

Shahan, Rear & Moses 1 3
Scott, Reserve Gas Co. 1 ..... gas

KANAWHA COUNTY

Huffman, United Fuel Gas Co. 563 ... 1
Winifrede Co., Winifrede Co. 7 ..... gas
Winifrede Co., Winifrede Co. 8 ..... gas
Winifrede Co., Winifrede Co. 15 ..... gas
Dickinson, Ten Mile O. & G. Co. 11 ... gas

LEWIS COUNTY

Flesher, Fred Flesher 1 ..... gas

MARION COUNTY

Stewart, South Penn Oil Co. 5 ..... gas
Mercer heirs, Harry L. Tennant 1 ..... gas

MARSHALL COUNTY

Peterson, Valley Oil & Gas Co. ..... gas
Loper, Manufacturers L. & H. Co. 3,380 oil
Wendt, Manufacturers L. & H. Co. 3,374 gas

MINGO COUNTY

Yates, Frank Yates 1 ..... gas

MONONGALIA COUNTY

Shuman, Pgh. & W. Va. Gas Co. 5,078.. gas

PLEASANTS COUNTY

Smith, Dinsmore & Co. 2 2

PUTNAM COUNTY

Rogers, United Fuel Gas Co. 4,121 .... gas

RITCHIE COUNTY

Markey, Daniel O'Day estate 4 2
Goff, U. C. Pierce et al 1 ..... gas
Coffield, Goff & Woodward 1 ..... gas

ROANE COUNTY

Vineyard, United Fuel Gas Co. 1,645 ... dry

TYLER COUNTY

Cain heirs, Clifton Oil & Gas Co. 4 ... gas
Williams, H. Underwood 1 ..... dry
Lemasters, Manufacturers L. & H. Co. 3,469 ..... gas

WAYNE COUNTY

Adkins, C. C. Wolfe 1 ..... gas

WETZEL COUNTY

Bartrug, Null & Moorehead 1 ..... gas

WOOD COUNTY

Lemley, John Leeten et al 1 3

CENTRAL OHIO FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Ashland	1	0	0	1	3	13	16
Medina	7	130	1	1	3	5	8
Lorain	3	0	1	4	2	3	5
Wayne	1	0	0	1	0	4	4
Cuyahoga	0	0	0	0	0	1	1
Ashtabula	2	2	0	2	0	1	1
Richland	1	0	0	1	3	2	5
Knox	1	0	0	1	0	0	0
Coshocton	5	9	3	1	0	2	2
Summitt	3	0	0	3	0	3	3
Licking	1	0	1	0	2	3	5
Muskingum	3	20	0	2	3	14	17
Athens	3	200	1	1	2	11	13
Tuscarawas	1	0	0	1	2	1	3
Stark	6	0	0	6	6	19	25
Fairfield	3	0	0	3	0	1	1
Guernsey	1	0	0	1	0	8	8
Belmont	4	0	2	2	0	6	6
Gallia	0	0	0	0	0	2	2
Scioto	0	0	0	0	0	2	2
Pike	0	0	0	0	0	2	2
Morrow	0	0	0	0	0	1	1
Geauga	1	0	1	0	0	0	0
Pickaway	0	0	0	0	0	1	1
Total May	49	359	10	31	26	105	131
Total Apr.	31	26	11	15	34	100	134
Difference	18	333	1	16	8	5	3

WELLS COMPLETED
ASHLAND COUNTY

Orange—Albert Stackhouse, Ohio Fuel Gas 1-5,466 ..... gas

MEDINA COUNTY

Chatham—M. A. Frank, Edson Co. 18.. 20
M. A. Frank, Edson Co. 19 40
Archie E. Packard, Edson Co. 14 35
C. G. Chapman, C. L. Williams & Co. 2 ..... gas
Wm. M. Geisinger, Heimer & Co. 6.. dry
Wm. M. Geisinger, Heimer & Co. 7.. 5
Thos. Brown, Jr., Curtis & Eakens 4 30

Wells completed 7
Production 130
Dry 1
Gas 1

LORAIN COUNTY

Columbia—C. E. Lehman, Ohio Fuel Gas 2-5,486 ..... gas
O. R. Crocker, Ohio Fuel Gas 1-5,487. gas
A. D. Crocker, Ohio Fuel Gas 1-5,489. gas
G. & N. Allen, McMillan & Co. 3 ... gas
Louis Gest, Dillon & McFredericks 1 dry

Wells completed 5
Dry 1
Gas 4

WAYNE COUNTY

Chester—Effie M. Bates, Harmon & George 2 ..... gas

ASHTABULA COUNTY

Conneaut—Ida Maki, Beeghley-Schaffer Oil & Gas 1 ..... gas
E. Layman, Beeghley-Schaffer Oil & Gas 1 ..... gas

Wells completed 2
Gas 2

RICHLAND COUNTY

Miflin—Isaac Abey & Co., Harmon & George 1 ..... gas

KNOX COUNTY

Howard—Frank Magers, Upham Gas 1. gas

COSHOCTON COUNTY

Perry—A. Mikesell, Preston Oil 1-1,479. dry
C. A. Giffin, Preston Oil 1-1,482 .... dry
Howard Wilt, Preston Oil 1-1,483 ... dry
Wm. Frazee, Preston Oil 1-1,480 9
A. L. Cochran, Ohio Fuel Gas 1-5,410 gas

Wells completed 5
Production 9
Dry 3
Gas 1

SUMMITT COUNTY

Green—C. C. McCue, East Ohio Gas 1. gas
J. R. Layman, Smith & Co. 1 ..... gas
Katherine Selzer, Eagon & Co. 1 .... gas

Wells completed 3
Gas 3

LICKING COUNTY

Perry—J. W. Atwood, E. J. Edmonds 1. dry

MUSKINGUM COUNTY

Hopewell—Laura Van Allen, Hopewell Gas & Fuel 1 20
Washington—A. M. Doty, Atha Oil 1 ... gas
Falls—J. A. Hale, Ohio Fuel Gas 1-5,479 gas

Wells completed 3
Production 20
Gas 2

ATHENS COUNTY

York—Hocking-Athens Coal, Hocking Valley Drlg. Co. 3 200
Troy—A. Caplinger, Ohio Fuel Gas 1-5,482 ..... gas
Rome—J. L. Winner, Rose-Yoeman 17.. dry

Wells completed 3
Production 200
Dry 1
Gas 1

TUSCARAWAS COUNTY

Fairfield—J. W. Weaver, Local Oil 2 .. gas

STARK COUNTY

Jackson—Lantz-Clovis, Medford Oil & Gas 1 ..... gas
John Firestone, Medford Oil & Gas 2 gas
H. W. Fawcett, East Ohio Gas 1 .... gas
Lake Cable Co., Brendall & Co. 2 .. gas
H. Haymaker, Brendall & Co. 1 .... gas
Lawrence—E. K. Brugger, Wittmer Prop., Tr., 1 ..... gas

Wells completed 6
Gas 6

FAIRFIELD COUNTY

Berne—C. Schall, City Natural Gas Works 4 ..... gas
Richland—Clay H. Shaw, Patton & Bishop 1 ..... gas
O. F. Basore, Sturm & Co. 1 ..... gas

Wells completed 3
Gas 3

GUERNSEY COUNTY

Jackson—Frank Fabion, W. C. Urban & Co. 1 ..... gas

BELMONT COUNTY

Somerset—John Patterson Est., Bradfield & Co. 1 ..... gas
Howell & Dement, W. C. McBride, Inc., 5 ..... gas
C. J. Smith, Carrie J. Smith & Co. 1. dry
Colerain—Amos S. Litton, A. D. Crouch & Co. 4 ..... dry

Wells completed 4
Dry 2
Gas 2

GEAUGA COUNTY

Parkman—M. W. Framm, McClay Bros. 1 ..... dry

TENNESSEE FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Montgomery	0	0	0	0	0	1	1
Putnam	0	0	0	0	0	1	1
Smith	0	0	0	0	0	1	1
Warren	0	0	0	0	0	1	1
Clay	0	0	0	0	0	2	2
White	0	0	0	0	0	1	1
Dickson	0	0	0	0	0	2	2
Morgan	2	0	0	2	0	0	0
Lincoln	0	0	0	0	0	2	2
Overton	0	0	0	0	0	2	2
Franklin	1	0	0	1	0	0	0
Cheatham	0	0	0	0	0	1	1
Robertson	0	0	0	0	0	1	1
Total May	3	0	0	3	0	15	15
Total Apr.	0	0	0	0	0	18	18
Difference	3	0	0	3	0	3	3

WELLS COMPLETED
MORGAN COUNTY

Sunbright—Benedum-Trees Co. 5 ..... gas
Eastern Tennessee Oil & Gas 3 ..... gas

Wells completed 3
Gas 3

FRANKLIN COUNTY

North of Winchester, Nashville Pike, J. H. McGuire 1 ..... gas

LIMA

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Wood	0	0	0	0	1	0	1
Hancock	0	0	0	0	0	1	1
Mercer	1	0	0	1	0	0	0
Sandusky	1	0	1	0	0	1	1
Seneca	2	0	0	2	0	4	4
Lucas	0	0	0	0	0	2	2
Ottawa	1	2	0	0	0	2	1
Hardin	2	100	1	0	3	1	4
Henry	2	0	0	2	0	4	4
Shelby	1	5	0	0	0	0	0
Wyandot	0	0	0	0	1	3	4
Huron	0	0	0	0	0	1	1
Total May	10	107	2	5	5	19	24
Total Apr.	9	160	1	8	6	24	30
Difference	1	53	1	1	1	5	6

WELLS COMPLETED
WOOD COUNTY

Montgomery—S. B. Cessba, Ohio Oil 2, 4, 5, 6, 7, 8, 9, 10 ..... abd
Henry—Bloom heirs, Donald Oil & Gas 13 ..... abd

Abandoned 9

HANCOCK COUNTY

Liberty—J. M. Reed, Ohio Oil 3 ..... abd
J. H. Grubb, Ohio Oil 10 ..... abd
W. C. Watson, Ohio Oil 15, 29 ..... abd
Mary M. Reed, Ohio Oil 4, 12, 14 .... abd
Portage—Jo. M. Cusac 34, Ohio Oil 4, 16, 17, 18, 21 ..... abd
Allen—J. D. Burrell, Ohio Oil 8 ..... abd
Knoke heirs, Ohio Oil 11 ..... abd
Jas. Decker fee, Ohio Oil 3 ..... abd
E. Trout heirs, Ohio Oil 8 ..... abd

Abandoned 16

ALLEN COUNTY

Spencer—Adam Louth, Ohio Oil 1, 2, 3. abd

Abandoned 3

AUGLAIZE COUNTY

St. Marys—C. H. Koop, Albert Huenke, Jr., 1, 2, 6 ..... abd

Abandoned 3

MERCER COUNTY

Butler—J. W. Long, A. A. Lauber 1 ... gas

VAN WERT COUNTY

Jennings—Evan T. Morgan, Ohio Oil 7. abd

SANDUSKY COUNTY

Jackson—C. Baker, Cessna-Feasel, Inc., 1 ..... dry
Rice—Peter J. Beier, Ohio Oil 2 ..... abd

Wells completed 1
Dry 1
Abandoned 1

SENECA COUNTY

Hopewell—D. S. Eostler, Sandusky Gas 1 ..... gas
Liberty—A. Fiechiner, Tiffin Industrial Gas 5 ..... gas
Clinton—Wm. Einsel, R. B. McKinney & Co. 11 ..... abd

Wells completed 2
Gas 2
Abandoned 1

OTTAWA COUNTY

Harris—H. Klingbiel, Sugar Creek Oil 1 2

TecPro
~~BLACK LINE~~
Pipe Coatings

COLD APPLICATION
EASY TO APPLY
DRIES QUICKLY
WATER PROOF
SOIL PROOF

• •

HAS STOOD THE TEST OF YEARS

• •

USED BY MAJOR PIPE LINE COMPANIES BECAUSE OF ITS PROVEN MERIT

TECHNICAL PRODUCTS, Inc.
Chemical Engineers . . . . Dallas, Texas

TEXAS OIL MAPS
County and District Catalog on Application
HEYDRICK MAPPING COMPANY
Wichita Falls, Texas

PATENTS *Write for Free Book*
MUNN & CO.
Associated since 1846 with the Scientific American
314 Scientific American Bldg., Washington, D. C.
1551 Scientific American Building, 24 West 40th Street, New York City
1303 Tower Building, Chicago, Ill.
625 Hobart Building, San Francisco, Calif.
311 Van Nuys Bldg., Los Angeles, Calif.

J. D. THOMPSON, JR.
CONSULTING GEOLOGIST
Specializing in the Texas Panhandle and Adjoining Territory
Office Phone: 2-1623 Residence: 4957
Amarillo National Bank Bldg.
AMARILLO, TEXAS

VALUABLE INFORMATION FOR OIL MEN

is to be found in The Oil and Gas Journal each week pertaining to all phases of the Petroleum Industry.

Keep abreast of the times by reading it each week.

The Oil and Gas Journal
Tulsa, Okla.

HARDIN COUNTY

Pleasants—Geo. W. Matthews, Jupiter Oil & Gas 1 100
Taylor Creek—C. L. Radabaugh, Kemrow Co. 1 ..... dry

Wells completed 2
Production 100
Dry 1

HENRY COUNTY

Damascus—W. F. McKinney, Lake Shore & Southwestern Metal Co. 1 ..... gas
Nettie McLain, Lake Shore & Southwestern Metal Co. 1 ..... gas

Wells completed 2
Gas 2

SHELBY COUNTY

Cynthian—Geo. W. Treiber, Ellerman Oil 2 5

ILLINOIS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Clark	0	0	0	0	1	1	2
Cumberland	0	0	0	0	0	1	1
Coles	0	0	0	0	0	1	1
Crawford	2	0	2	0	2	1	3
Edgar	0	0	0	0	0	1	1
Wabash	0	0	0	0	0	1	1
St. Clair	1	0	1	0	0	2	2
Effingham	0	0	0	0	0	1	1
Randolph	0	0	0	0	0	2	2
Monroe	0	0	0	0	0	2	2
Washington	0	0	0	0	0	1	1
Clinton	0	0	0	0	0	2	2
Boone	0	0	0	0	0	1	1
Madison	0	0	0	0	0	2	2
Marion	0	0	0	0	0	1	1
Perry	0	0	0	0	0	1	1
Total May	3	0	3	0	3	21	24
Total April	0	0	0	0	3	22	25
Difference	3	0	3	0	0	1	1

WELLS COMPLETED
CRAWFORD COUNTY

Prairie—O. H. Smith, O. R. Oil & Gas 2 ..... dry
Montgomery—I. Laughead, Phipps, Cawood & Co. 1 ..... dry
Robinson—E. T. Wakefield, Ohio Oil 1, 2 ..... abd

Wells completed 2
Dry 2
Abandoned 2

LAWRENE COUNTY

Bridgeport—John P. Middagh No. 2, Ohio Oil 1, 2 ..... abd
Petty—H. W. Hostettler, Ohio Oil 7 .. abd
Lawrence—P. Barnes, Ohio Oil 2 ..... abd
L. C. Cole, Ohio Oil 2 ..... abd
P. M. O'Donnell, Ohio Oil 4 ..... abd
J. W. McCleve, Borough, Breen & Co. 1, 2 ..... abd

Abandoned 2

ST. CLAIR COUNTY

Sugar Loaf—J. Lutton, John Lutton 2. dry
Chas. Drake, Robt. A. Murray & Co. 1 abd
Otten & Pittman, Knox & Robinson 1 abd

Wells completed 1
Dry 1
Abandoned 2

INDIANA

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Jay	0	0	0	0	0	1	1
Adams	0	0	0	0	0	1	1
Huntington	0	0	0	0	0	2	2
Gibson	0	0	0	0	0	2	2
Pike	2	0	2	0	0	3	3
Daviess	4	0	3	1	0	4	4
Sullivan	2	0	2	0	0	3	3
Warrick	0	0	0	0	0	1	1
Spencer	1	50	0	0	0	7	7
Perry	3	575	0	0	0	3	3
White	0	0	0	0	0	1	1
Marshall	0	0	0	0	1	1	2
Monroe	2	0	0	2	0	1	1
Knox	2	0	2	0	0	2	2
Lagrange	0	0	0	0	0	1	1
Posey	0	0	0	0	0	1	1
Putnam	0	0	0	0	0	1	1
Laporte	0	0	0	0	0	1	1
DeKalb	0	0	0	0	0	1	1
Rush	1	0	0	1	0	1	1
Floyd	0	0	0	0	0	1	1
Vanderburg	0	0	0	0	1	4	5
Hancock	0	0	0	0	0	2	2
Elkhart	0	0	0	0	1	1	2
Lake	1	0	1	0	0	0	0
Harrison	0	0	0	0	0	1	1
Hamilton	0	0	0	0	0	1	1
Shelby	0	0	0	0	0	1	1
Greene	0	0	0	0	0	2	2
Total May	18	625	10	4	3	51	54
Total Apr.	11	75	6	1	6	55	61
Difference	7	550	4	3	3	4	7

WELLS COMPLETED
DELAWARE COUNTY

Delaware—M. M. Friddle, Max Zeigler & Co. 2, 3, 4, 5, 6, 7, 8 ..... abd
Lawrence Coons, Max Zeigler & Co. 1, 2, 3, 4, 5, 6, 7 ..... abd
Liberty—H. C. Ashcraft, Harley Demoss 1, 2 ..... abd
J. H. Baughn, Tharp & Demoss 12 .. abd

Abandoned 17

ADAMS COUNTY

Blue Creek—D. Dudgeon, Ohio Oil 5 ... abd
Jefferson—D. Studebaker, Bermuda Oil & Gas 8 ..... abd

Abandoned 2

RANDOLPH COUNTY

Monroe—Rhoda B. Cockrill, Tharp & Demoss 2, 3 ..... abd
F. E. Keever, Tharp & Demoss 1 ... abd
Chas. Jackson, C. F. Chapman 1, 4 ... abd
T. F. Adams, Chas. Graf 1, 2, 3 ..... abd

Abandoned 8

PIKE COUNTY

Washington—Wm. Lamb, James E. Young 2 ..... dry
Patoka—Everette Crow, Cato Oil & Gas 1 ..... dry

Wells completed 2
Dry 2

DAVIESS COUNTY

Veale—S. Jones, C. C. Taliaferro, Jr., 1. dry
H. Robinson, C. C. Taliaferro, Jr., 1.. dry
Barr—Oscar Sellers, Ben D. Rubie 1 .. dry
B. Frank McCord, Knox Engineering Corp. 4 ..... gas

Wells completed 4
Dry 3
Gas 1

SULLIVAN COUNTY

Haddon—R. B. Gilbert, Wade Connelly & Co. 1 ..... dry
Matilda Walters, Connelly & Co. 1.. dry

Wells completed 2
Dry 2

SPENCER COUNTY

Huff—Mary Berg, Santa Fe Oil 3 50

PERRY COUNTY

Clark—Lee Aders, Conyers & Co. 2 ... 200
Lee Aders, Conyers & Co. 3 350
Frank Cassidy, Conyers & Co. 4 25

Wells completed 2
Production 575

MONROE COUNTY

Benton—Ray Ealy, Ohio Oil & Petroleum Expl. 1 ..... gas
M. M. Young heirs, Ohio Oil & Petroleum Expl. 2 ..... gas

Wells completed 2
Gas 2

KNOX COUNTY

Busseron—J. P. Beard, Jas. H. Gardner Petroleum 1 ..... dry
M. M. Hall, Jas. H. Gardner Petroleum 1 ..... dry

Wells completed 2
Dry 2

RUSH COUNTY

Ripley—Fred McManus, J. D. Overlease 1 ..... gas

LAKE COUNTY

Near Highland—Unknown Dome Oil 1 . dry

PORTER COUNTY

Chester—Arthur Hanrahan, San Juan Coal & Oil 1 ..... abd

MICHIGAN FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Muskegon	1	0	1	0	1	5	6
Isabella	2	0	1	1	26	37	63
Midland	2	600	1	0	7	13	20
Clare	1	0	1	0	3	2	5
Mecosta	0	0	0	0	1	0	1
Lake	0	0	0	0	0	2	2
Cass	0	0	0	0	0	2	2
Kent	0	0	0	0	1	2	3
Ottawa	0	0	0	0	0	2	2
Oceana	0	0	0	0	1	5	6
Bay	0	0	0	0	1	1	2
Mason	1	0	1	0	0	4	4
Newyago	0	0	0	0	0	5	5
Emmett	0	0	0	0	0	1	1
Eaton	0	0	0	0	1	0	1
Kalkasky	0	0	0	0	1	1	2
Monroe	1	1	0	0	0	1	1
Lenawee	0	0	0	0	0	1	1
Washtenaw	0	0	0	0	0	2	2
Iosco	0	0	0	0	2	0	2
Missaukee	0	0	0	0	1	0	1
Delta	0	0	0	0	1	0	1
Montmorency	0	0	0	0	1	0	1
Kalamazoo	0	0	0	0	0	1	1
Van Buren	0	0	0	0	0	2	2
Sanilac	0	0	0	0	3	0	3
Gratiot	0	0	0	0	3	3	6
Shiawassee	0	0	0	0	2	2	4
Livingston	0	0	0	0	1	2	3
Allegan	0	0	0	0	1	5	6
Leelanau	0	0	0	0	1	0	1
Osceola	0	0	0	0	1	0	1
St. Clair	0	0	0	0	2	0	2
Genessee	0	0	0	0	1	0	1
Alpena	0	0	0	0	0	1	1
Ogemaw	1	0	1	0	0	0	0
Cheboygan	0	0	0	0	0	1	1
Total May	9	601	6	1	69	103	166
Total Apr.	8	490	2	3	63	103	166
Difference	1	111	4	2	0	0	0

WELLS COMPLETED
MUSKEGON COUNTY

White River—Arvid Nelson, H. C. Nelson 1 ..... dry

ISABELLA COUNTY

Broomfield—Keeler-Mitchell, Pure Oil 3 gas
Wise—John Parker, Michigan Oil & Gas Corp. 1 ..... dry

Wells completed 2
Dry 1
Gas 1

MIDLAND COUNTY

Greendale—George Harnick, Kalamazoo Improvement Co. 1 600
Cornelius Durkin, Theodore Oil 1 .... dry

Wells completed 2
Production 600
Dry 1

CLARE COUNTY

Surry—McKay-Mercier, Henry M. Brown 2 ..... dry

MASON COUNTY

Grant—Diamond, M. I. Diamond 1 .... dry

MONROE COUNTY

Milan—Geo. Faskin, Daugherty, Dayton & Co. 2 1

OGEMAW COUNTY

Logan—Frank Bernard, Sun Oil 1 .... dry

NEW IDEAS
BETTER TOOLS
BAKER

FLOAT AND GUIDE WITH SAFETY

No matter what the length of string you are running—short or long—it represents a lot of money.

Why take a chance with it?

You won't, if you'll protect it with the Baker Cement Float Collar and the Baker Cement Whirler Shoe.

You'll not only float that string down safely and with a maximum of speed, but you'll do more—

—The Baker Cement Whirler Shoe will give you the best possible job of cementing — an even distribution all around the Shoe and casing, and no danger of channeling.

And the cost is truly economical.

BAKER OIL TOOLS INC.
HUNTINGTON PARK, CALIFORNIA
California Branches:
Coalinga Taft Bakersfield
Mid-Continent Branches:
220 East Brady St., Tulsa, Oklahoma
2301 Commerce St., Houston, Texas
Export: Rm. 736, 25 Broadway, N. Y. City

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for April Runs

Company—	Month bbls.	Dly av. bbls.
Prairie P. L. Co.*	924,000	30,800
Gulf P. L. Co.	1,291,156	46,372
Texas P. L. Co.	641,879	21,396
Empire P. L. Co.	2,312,259	77,075
Magnolia P. L. Co.	1,598,556	53,285
Cosden P. L. Co.	655,096	21,770
Stanolind P. L. Co.	3,340,000	111,333
Oklahoma P. L. Co.	2,159,671	71,989
Other lines*	6,960,000	232,000
Total April	19,980,617	666,020
Total March	19,803,129	638,816
Difference	177,488	27,210

Shipments

Prairie P. L. Co.†	2,324,661	77,489
Gulf P. L. Co.	1,497,417	49,914
Texas P. L. Co.	1,432,493	47,750
Empire P. L. Co.	2,292,164	76,405
Magnolia P. L. Co.	1,801,601	60,053
Cosden P. L. Co.	773,783	25,793
Stanolind P. L. Co.†	3,641,374	121,379
Oklahoma P. L. Co.	2,124,819	70,827
Other lines	7,140,000	238,000
Total April	23,028,312	767,610
Total March	21,762,925	702,030
Difference	1,265,387	65,580

Stocks

Prairie O. & G. Co.*	37,325,000
Gulf P. L. and Gypsy Oil Co.	8,634,325
The Texas Company	3,553,096
Empire P. L. Co.	5,425,148
Mid-Continent Petroleum Co.	2,670,612
Stanolind Crude Oil Pur. Co.*	18,300,000
Magnolia Petroleum Co.	6,167,201
Oklahoma P. L. Co.	2,590,601
Carter Oil Co.	3,765,225
Other lines*	21,139,000
Total April	115,563,208
Total March	117,204,838
Difference	1,641,630

*Estimated. †Prairie and Stanolind shipments include Texas crude oil.

EASTERN PIPE LINE REPORT FOR MONTH OF MAY

Runs from Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for April and May:

	Apr., 1931	May, 1931
Nat. Transit	142,938.57	143,585.75
S. W. Pa. P. L.	75,998.00	74,718.32
Eureka P. L.	294,234.07	293,679.22
Buckeye P. L. (Macksburg)	300,478.22	292,687.45
Buckeye P. L. (Cleveland)	11,192.35	13,408.60
Buckeye P. L. (Lima, etc.)	78,452.79	80,369.42
Indiana P. L.	2,975.41	3,425.44
Cumberland P. L.	166,133.49	158,976.48
N. Y. Transit	28,562.30	28,296.26
Tide Water P. L.	27,008.88	24,946.95
Pure Oil	195,221.33	188,974.65
Stoll Oil Ref.	.....	26,609.87
Bradford Transit	321,147.01	324,013.67
Total	1,647,436.50	1,653,692.08
Daily average	54,914.55	53,344.91

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for April and May:

	Apr., 1931	May, 1931
Nat. Transit	480,757.15	494,823.01
S. W. Pa. P. L.	386,704.21	442,582.39
Eureka P. L.	200,604.46	328,121.10
Buckeye P. L. (Macksburg)	230,921.29	231,067.12
Buckeye P. L. (Cleveland)	2,198.31	1,709.67
Buckeye P. L. (Lima, etc.)	1,677,678.11	1,588,533.48
Indiana P. L.	998,276.65	1,121,163.39
Cumberland P. L.	108,989.29	109,505.58
Southern P. L.	20,351.93	88,868.78
N. Y. Transit	174,908.27	191,931.04
Northern P. L.	165,693.77	177,918.97
Tide Water P. L.	451,375.06	454,064.43
Pure Oil	228,993.49	256,536.46
Bradford Transit	324,367.08	304,084.82
Tuscarora	283,195.69	285,769.63
East Gulf Oil	3,094.01	.....
Total	5,743,508.77	6,176,679.86
Daily average	191,450.29	199,247.74

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of April and May:

	Apr., 1931	May, 1931
Nat. Transit	790,741.10	753,134.11
S. W. Pa. P. L.	538,721.14	512,838.77
Eureka P. L.	1,762,107.52	1,817,026.88
Buckeye P. L. (Macksburg)	513,877.24	270,904.34
Buckeye P. L. (Cleveland)	46,073.83	58,962.66
Buckeye P. L. Lima, etc.)	3,730,603.33	3,641,367.87
Indiana P. L.	603,583.09	518,335.78
Cumberland P. L.	659,658.19	644,027.51
Southern P. L.	312,817.70	317,548.61
N. Y. Transit	109,007.83	126,136.54
Northern P. L.	291,059.44	339,978.15
Tide Water P. L.	900,197.73	863,211.61
Pure Oil	604,079.70	541,284.20
Tuscarora	13,173.80	13,462.07
Bradford Transit	164,714.48	210,020.88
East Gulf Oil	4,071.47	.....
Total	11,044,487.59	10,728,239.98
Increase	32,325.03	
Decrease		316,247.61

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern Pipe Lines at the close of April and May, showing gross stocks of the above fields:

	Apr., 1931	May, 1931
Pennsylvania	3,966,991.51	3,895,594.08
Lima	809,789.51	792,443.56
Kentucky	674,030.47	654,328.32
Mid-Continent	4,984,054.76	4,854,341.47
Illinois	16,978.58	.....
Michigan	592,642.76	531,532.55
Total	11,044,487.59	10,728,239.98

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1928	1929	1930	1931
January	52,904	51,749	75,907	53,939
February	57,002	51,833	79,256	55,163
March	57,485	54,252	76,688	54,331
April	56,812	58,444	84,536	54,914
May	62,067	59,902	70,546	53,344
June	58,230	58,333	75,430	.....
July	57,144	66,087	68,921	.....
August	57,745	66,087	54,291	.....
September	53,487	67,315	56,595	.....
October	58,100	76,093	58,179	.....
November	53,865	74,831	52,332	.....
December	52,025	74,561	53,999	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1928	1929	1930	1931
January	146,465	165,721	217,623	175,369
February	167,368	159,387	224,355	183,494
March	158,883	161,474	228,846	189,508
April	172,935	169,737	241,845	191,450
May	180,559	184,281	248,383	199,247
June	188,024	185,404	234,401	.....
July	189,470	194,763	207,094	.....
August	192,853	194,946	205,506	.....
September	194,138	201,814	193,999	.....
October	176,000	191,367	157,675	.....
November	176,898	202,743	146,638	.....
December	173,572	186,257	143,001	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil field including oil received from other lines at the close of each month for the past three years:

	1929	1930	1931
January	7,596,564	12,220,045	11,831,0
February	8,738,835	12,991,561	11,506,4
March	9,002,058	13,247,217	11,012,1
April	8,978,172	13,233,961	11,044,4
May	8,903,560	13,052,953	10,728,2
June	8,921,275	12,396,855	.....
July	9,211,595	13,268,562	.....
August	9,440,643	13,047,051	.....
September	9,443,067	12,812,018	.....
October	9,441,101	12,437,555	.....
November	9,868,538	11,851,380	.....
December	11,253,953	11,751,952	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, June 1	643,438.6
Runs from wells	408,284.8
Other receipts	82,190.3
Regular deliveries	297,567.0
Other deliveries	208,208.3

The amount of Illinois oil run by the Tide Water Pipe Co. in May was 24,946.9 bbls. Deliveries were 24,946.95 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1931	Runs	Deliveries
May	433,231.80	322,513.9
1930—		
January	543,387.95	498,293.9
February	548,416.33	414,536.5
March	631,944.49	469,119.5
April	530,074.22	509,304.6
May	605,147.37	504,069.8
June	572,662.57	468,658.8
July	604,529.54	388,454.4
August	594,642.12	375,742.4
September	457,001.11	371,691.6
October	478,442.12	320,688.7
November	422,794.68	355,403.1
December	556,418.78	363,719.5
1931—		
January	468,429.04	669,573.1
February	429,284.54	461,262.8
March	424,638.23	356,663.2
April	421,814.98	282,532.6

Tide Water Pipe Co., Ltd., also delivered in May, 163,543.95 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930-31—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
May	5,194	8,451	28,161	9,484	2,774	54,064	.....	.....	.....	.....	774	54,838
June	8,300	.....	33,933	20,767	2,333	65,333	.....	.....	.....	.....	2,400	67,733
July	17,355	7,774	43,419	23,839	6,452	98,839	.....	.....	.....	.....	4,645	103,484
August	7,418	8,742	38,968	21,226	5,258	81,613	.....	.....	.....	.....	97	81,710
September	6,300	6,400	25,600	13,400	9,567	61,267	.....	.....	.....	.....	2,433	63,700
October	2,516	3,065	27,258	16,419	4,903	54,161	.....	.....	.....	.....	5,355	59,516
November	8,367	6,233	33,800	17,733	4,600	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,323	30,645	9,675	3,580	53,742	.....	.....	.....	.....	4,645	58,387
January	8,387	6,613	21,968	14,678	11,096	62,742	.....	.....	.....	.....	6,129	68,871
February	5,787	2,713	29,143	4,000	5,750	47,393	.....	.....	.....	.....	3,750	51,143
March	10,032	1,611	21,388	7,324	8,774	49,129	.....	.....	.....	.....	6,355	55,484
April	5,133	.....	19,200	16,500	10,067	50,900	.....	.....	.....	.....	4,000	54,900

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930-31—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
May	24,129	9,322	174,194	39,291	28,226	276,161	8,194	11,548	2,935	1,323	24,000	299,161
June	51,533	15,667	121,067	45,033	25,033	258,333	4,413	17,367	2,167	1,333	25,300	283,663
July	42,097	9,548	154,968	37,935	36,032	280,580	5,678	9,161	2,097	2,387	19,323	299,903
August	19,932	4,484	145,613	33,355	25,097	247,581	8,419	9,323	8,548	3,000	29,290	276,871
September	38,867	8,533	150,933	34,500	25,567	258,400	6,433	12,234	.....	3,800	22,467	280,867
October	19,839	11,742	146,194	35,356	26,967	240,097	6,065	7,067	2,774	2,545	18,451	258,548
November	28,633	25,900	124,633	36,467	24,667	261,300	2,467	7,366	.....	1,767	11,600	272,900
December	21,419	14,033	132,774	32,839	23,774	224,835	6,290	10,613	3,097	290	19,290	244,125
January	17,613	13,519	154,225	32,902	30,612	248,871	2,032	11,677	2,097	3,097	18,903	267,774
February	31,321	18,929	127,786	31,714	26,857	234,607	4,536	11,571	.....	536	16,643	251,250
March	27,645	18,935	141,160	26,290	21,129	238,161	4,065	2,580	.....	1,968	8,613	246,774
April	35,000	10,533	105,000	29,767	35,533	215,833	2,733	3,400	.....	.....	6,133	221,966

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

1930—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
May:	Month	19,044,444	20,587,503	26,219,488	3,978,385	1,659,895	1,907,452	2,565,219	4,414,000	80,376,776
	Daily average	614,337	664,113	845,786	128,335	53,545	61,543	82,749	142,387	2,592,799
June:	Month	18,020,795	19,754,700	25,643,705	3,765,060	1,704,060	1,925,621	2,519,190	4,288,000	77,621,131
	Daily average	600,693	658,490	854,790	125,502	56,802	64,187	83,973	142,933	2,587,371
July:	Month	18,802,024	18,032,514	25,973,521	3,541,409	1,713,680	2,079,769	3,275,894	3,830,000	77,248,811
	Daily average	606,517	581,694	837,856	114,239	55,280	67,089	105,674	123,548	2,491,897
August:	Month	18,770,466	17,162,084	25,069,598	3,491,530	1,700,102	2,151,120	3,193,341	3,417,000	74,955,191
	Daily average	605,499	553,614	808,696	112,630	54,842	69,391	103,011	110,226	2,419,909
September:	Month	17,984,306	16,509,120	23,111,822	3,405,510	1,583,280	2,008,060	3,239,010	3,396,000	71,237,108
	Daily average	599,477	550,304	770,394	113,517	52,776	66,935	107,967	113,200	2,374,570
October:	Month	18,244,053	16,632,523	23,626,553	3,571,913	1,636,552	2,142,885	3,225,550	3,627,000	72,707,029
	Daily average	588,518	536,533	762,147	115,223	52,792	69,125	104,050	117,000	2,345,388
November:	Month	18,109,459	14,941,770	22,035,222	3,459,330	1,557,870	2,136,948	2,967,100	3,222,000	68,419,699
	Daily average	603,648	498,059	734,507	115,311	51,929	71,231	98,570	107,400	2,280,656
December:	Month	17,786,728	15,057,103	21,810,359	3,432,661	1,590,951	2,167,534	3,118,663	3,328,000	68,281,999
	Daily average	573,765	485,713	703,560	110,731	51,321	69,598	100,602	107,355	2,202,645
1931—										
January:	Month	16,485,798	14,850,953	20,690,452	3,149,073	1,574,955	2,131,937	2,966,142	3,374,000	65,223,310
	Daily average	531,796	479,063	667,435	101,583	50,805	68,772	95,682	108,839	2,103,978
February:	Month	14,930,932	13,271,876	18,964,596	3,369,016	1,402,492	1,981,476	2,747,024	3,129,000	59,896,412
	Daily average	533,248	477,567	677,307	120,322	50,089	70,767	98,108	111,750	2,139,158
March:	Month	16,364,842	16,430,341	22,975,309	3,498,598	1,444,941	2,033,197	2,897,725	3,374,000	69,019,263
	Daily average	527,898	530,011	741,139	112,855	46,611	65,587	93,475	108,839	2,226,428
April:	Month	15,803,541	16,717,650	26,611,890	3,281,880	1,412,220	1,920,780	2,888,100	3,273,000	71,909,061
	Daily average	526,785	557,255	887,063	109,396	47,074	64,026	96,270	109,100	2,369,969
Total 12 months		210,347,338	200,048,087	282,732,515	41,944,365	18,980,998	24,577,169	35,592,953	42,672,000	856,895,480